

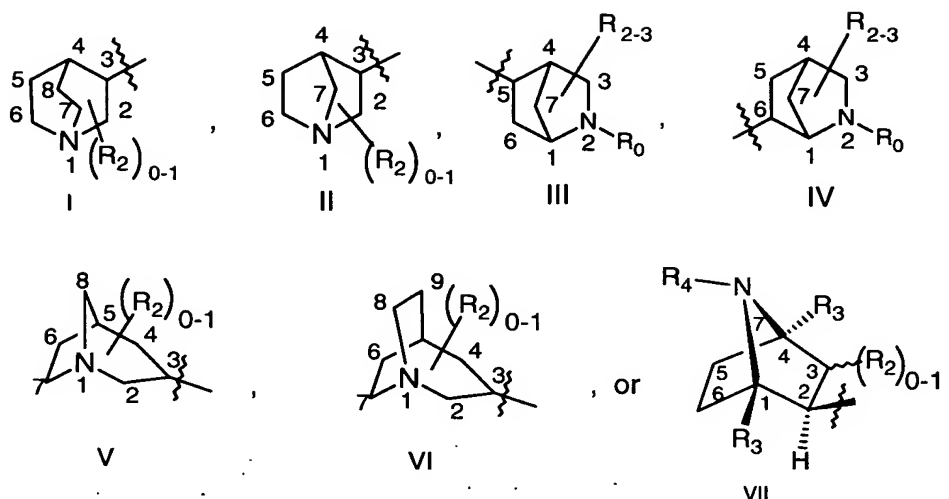
Claims:

1. A method of treating a mammal in need thereof, wherein the mammal would receive symptomatic relief by decreasing the level of TNF- α comprising administering an alpha 7 nAChR full agonist.
2. The method of claim 1, wherein the symptomatic relief would be to treat the mammal for infection, inflammation, cancer, or diabetes.
3. The method of claim 2, wherein the mammal would optionally receive an antiviral or antibacterial agent for a therapeutically effective interval, and wherein infection or inflammation is caused by rheumatoid arthritis; rheumatoid spondylitis; muscle degeneration; osteoporosis; osteoarthritis; psoriasis; contact dermatitis; bone resorption diseases; atherosclerosis; Paget's disease; uveitis; gouty arthritis; inflammatory bowel disease; adult respiratory distress syndrome; Crohn's disease; rhinitis; ulcerative colitis; anaphylaxis; asthma; Reiter's syndrome; tissue rejection of a graft; ischemia reperfusion injury; brain trauma; stroke; multiple sclerosis; cerebral malaria; sepsis; septic shock; toxic shock syndrome; fever and myalgias due to infection; HIV-1, HIV-2, HIV-3; cytomegalovirus; influenza; adenovirus; a herpes virus; or herpes zoster.
4. The method of claim 2, wherein cancer is multiple myeloma; acute and chronic myelogenous leukemia; or cancer-associated cachexia, and where the mammal would optionally receive at least one of an anticancer agent or antiemetic agent for a therapeutically effective interval.
5. The method of claim 2, wherein diabetes is type I and type II diabetes, and wherein the mammal optionally receives at least one agent for the treatment of diabetes for a therapeutically effective interval.
6. The method of claim 2, wherein diabetes is associated with pancreatic beta cell destruction.
7. The method of claim 1, wherein the full agonist is a compound of formula I:



Formula I

wherein Azabicyclo is



X is O, or S;

5 R_0 is H, lower alkyl, substituted lower alkyl, or lower haloalkyl;

Each R_1 is H, alkyl, cycloalkyl, haloalkyl, substituted phenyl, or substituted naphthyl;

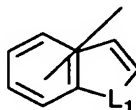
Each R_2 is independently F, Cl, Br, I, alkyl, substituted alkyl, haloalkyl, cycloalkyl, aryl, or R_2 is absent;

10 R_{2-3} is H, F, Cl, Br, I, alkyl, haloalkyl, substituted alkyl, cycloalkyl, or aryl;

Each R_3 is independently H, alkyl, or substituted alkyl;

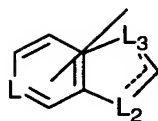
R_4 is H, alkyl, an amino protecting group, or an alkyl group having 1-3 substituents selected from F, Cl, Br, I, -OH, -CN, -NH₂, -NH(alkyl), or -N(alkyl)₂;

15 R_5 is 5-membered heteroaromatic mono-cyclic moieties containing within the ring 1-3 heteroatoms independently selected from the group consisting of -O-, =N-, -N(R_{10})-, and -S-, and having 0-1 substituent selected from R_9 and further having 0-3 substituents independently selected from F, Cl, Br, or I, or R_5 is 9-membered fused-ring moieties having a 6-membered ring fused to a 5-membered ring and having the formula

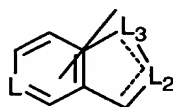


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wherein L_1 is O, S, or NR_{10} ,



wherein L is CR₁₂ or N, L₂ and L₃ are independently selected from CR₁₂, C(R₁₂)₂, O, S, N, or NR₁₀, provided that both L₂ and L₃ are not simultaneously O, simultaneously S, or simultaneously O and S, or



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wherein L is CR₁₂ or N, and L₂ and L₃ are independently selected from CR₁₂, O, S, N, or NR₁₀, and each 9-membered fused-ring moiety having 0-1 substituent selected from R₉ and further having 0-3 substituent(s) independently selected from F, Cl, Br, or I, wherein the R₅ moiety attaches to other substituents as defined in formula I at any

10 position as valency allows;

R₆ is 6-membered heteroaromatic mono-cyclic moieties containing within the ring 1-3 heteroatoms selected from =N- and having 0-1 substituent selected from R₉ and 0-3 substituent(s) independently selected from F, Cl, Br, or I, or R₆ is 10-membered heteroaromatic bi-cyclic moieties containing within one or both rings 1-3 heteroatoms selected from =N-, including, but not limited to, quinolinyl or isoquinolinyl, each 10-membered fused-ring moiety having 0-1 substituent selected from R₉ and 0-3 substituent(s) independently selected from F, Cl, Br, or I, wherein the R₆ moiety attaches to other substituents as defined in formula I at any position as valency allows;

20 R₇ is alkyl, substituted alkyl, haloalkyl, -OR₁₁, -CN, -NO₂, -N(R₈)₂;

Each R₈ is independently H, alkyl, cycloalkyl, heterocycloalkyl, alkyl substituted with 1 substituent selected from R₁₃, cycloalkyl substituted with 1 substituent selected from R₁₃, heterocycloalkyl substituted with 1 substituent selected from R₁₃, haloalkyl, halocycloalkyl, haloheterocycloalkyl, phenyl, or substituted phenyl;

25 R₉ is alkyl, cycloalkyl, heterocycloalkyl, haloalkyl, halocycloalkyl, haloheterocycloalkyl, -OR₁₄, -SR₁₄, -N(R₁₄)₂, -C(O)R₁₄, -C(O)N(R₁₄)₂, -CN, -NR₁₄C(O)R₁₄, -S(O)₂N(R₁₄)₂, -NR₁₄S(O)₂R₁₄, -NO₂, alkyl substituted with 1-4 substituent(s) independently selected from F, Cl, Br, I, or R₁₃, cycloalkyl substituted with 1-4 substituent(s) independently selected from F, Cl, Br, I, or R₁₃, or

30

heterocycloalkyl substituted with 1-4 substituent(s) independently selected from F, Cl, Br, I, or R_{13} ;

R_{10} is H, alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, phenyl, or phenyl having 1 substituent selected from R_7 and
5 further having 0-3 substituents independently selected from F, Cl, Br, or I;

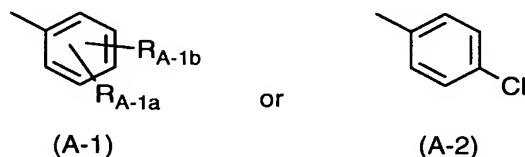
Each R_{11} is independently H, alkyl, cycloalkyl, heterocycloalkyl, haloalkyl, halocycloalkyl, or haloheterocycloalkyl;

Each R_{12} is independently H, F, Cl, Br, I, alkyl, cycloalkyl, heterocycloalkyl, haloalkyl, halocycloalkyl, haloheterocycloalkyl, substituted alkyl, substituted
10 cycloalkyl, substituted heterocycloalkyl, -CN, -NO₂, -OR₁₄, -SR₁₄, -N(R_{14})₂, -C(O) R_{14} , -C(O)N(R_{14})₂, -NR₁₄C(O) R_{14} , -S(O)₂N(R_{14})₂, -NR₁₄S(O)₂ R_{14} , or a bond;

R_{13} is -OR₁₄, -SR₁₄, -N(R_{14})₂, -C(O) R_{14} , -C(O)N(R_{14})₂, -CN, -CF₃, -NR₁₄C(O) R_{14} , -S(O)₂N(R_{14})₂, -NR₁₄S(O)₂ R_{14} , or -NO₂;

Each R_{14} is independently H, alkyl, cycloalkyl, heterocycloalkyl, haloalkyl,
15 halocycloalkyl, or haloheterocycloalkyl;

wherein W is (A):



wherein R_{A-1a} is H, alkyl, alkenyl, alkynyl, cycloalkyl, heterocycloalkyl,
20 haloalkyl, haloalkenyl, haloalkynyl, halocycloalkyl, haloheterocycloalkyl, substituted alkyl, substituted alkenyl, substituted alkynyl, substituted cycloalkyl, substituted heterocycloalkyl, aryl, - R_5 , R_6 , -OR_{A-3}, -SR_{A-3}, F, Cl, Br, I, -N(R_{A-3})₂, -C(O) R_{A-3} , -CN, -C(O)N(R_{A-3})₂, -NR_{A-3}C(O) R_{A-3} , -S(O) R_{A-3} , -OS(O)₂ R_{A-3} , -NR_{A-3}S(O)₂ R_{A-3} , -NO₂, and -N(H)C(O)N(H) R_{A-3} ;

25 R_{A-1b} is -O- R_{A-3} , -S- R_{A-3} , -S(O)- R_{A-3} , -C(O)- R_{A-7} , and alkyl substituted on the ω carbon with R_{A-7} ;

Each R_{A-3} is independently selected from H, alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, halo- heterocycloalkyl, substituted heterocycloalkyl, R_5 , R_6 , phenyl, or substituted phenyl;

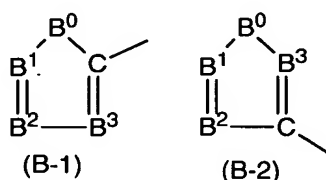
30 R_{A-4} is selected from cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, or substituted heterocycloalkyl;

Each R_{A-5} is independently selected from cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, R_5 , R_6 , phenyl, or substituted phenyl;

Each R_{A-6} is independently selected from alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, halo-
 5 heterocycloalkyl, substituted heterocycloalkyl, R_5 , R_6 , phenyl, or substituted phenyl;

R_{A-7} is selected from aryl, R_5 , or R_6 ;

wherein W is (B):



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wherein B^0 is -O-, -S-, or -N(R_{B-0})-;

B^1 and B^2 are independently selected from =N-, or =C(R_{B-1})-;

B^3 is =N-, or =CH-, provided that when both B^1 and B^2 are =C(R_{B-1})- and B^3 is =CH-, only one =C(R_{B-1})- can be =CH-, and further provided that when B^0 is -O-, B^2
 15 is =C(R_{B-1})- and B^3 is =C(H)-, B^1 cannot be =N-,

R_{B-0} is H, alkyl, cycloalkyl, heterocycloalkyl, haloalkyl, halocycloalkyl, haloheterocycloalkyl, substituted alkyl, substituted cycloalkyl, substituted heterocycloalkyl, or aryl, and provided that when B is (B-2) and B^3 is =N- and B^0 is N(R_{B-0}), R_{B-0} cannot be phenyl or substituted phenyl;

20 R_{B-1} is H, alkyl, alkenyl, alkynyl, cycloalkyl, heterocycloalkyl, haloalkyl, haloalkenyl, haloalkynyl, halocycloalkyl, haloheterocycloalkyl, substituted alkyl, substituted alkenyl, substituted alkynyl, substituted cycloalkyl, substituted heterocycloalkyl, aryl, -OR_{B-2}, -SR_{B-2}, F, Cl, Br, I, -N(R_{B-2})₂, -C(O)R_{B-2}, -C(O)N(R_{B-2})₂, -CN, -NR_{B-2}C(O)R_{B-4}, -S(O)₂N(R_{B-2})₂, -OS(O)₂R_{B-4},
 25 -S(O)₂R_{B-2}, -NR_{B-2}S(O)₂R_{B-2}, -N(H)C(O)N(H)R_{B-2}, -NO₂, R_5 , and R_6 ;

Each R_{B-2} is independently H, alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, R_5 , R_6 , phenyl, or substituted phenyl;

Each R_{B-3} is independently H, alkyl, haloalkyl, limited substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl;

R_{B-4} is independently H, alkyl, cycloalkyl, heterocycloalkyl, haloalkyl,
5 halocycloalkyl, or haloheterocycloalkyl;

wherein W is (C):

(C) is a six-membered heterocyclic ring system having 1-2 nitrogen atoms or a
10 10-membered bicyclic-six-six-fused-ring system having up to two nitrogen atoms
within either or both rings, provided that no nitrogen is at a bridge of the bicyclic-six-
six-fused-ring system, and further having 1-2 substituents independently selected
from R_{C-1} ;

Each R_{C-1} is independently H, F, Cl, Br, I, alkyl, haloalkyl, substituted alkyl,
alkenyl, haloalkenyl, substituted alkenyl, alkynyl, haloalkynyl, substituted alkynyl,
15 cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, halohetero-
cycloalkyl, substituted heterocycloalkyl, lactam heterocycloalkyl, phenyl, substituted
phenyl, $-NO_2$, $-CN$, $-OR_{C-2}$, $-SR_{C-2}$, $-SOR_{C-2}$, $-SO_2R_{C-2}$, $-NR_{C-2}C(O)R_{C-2}$, $-N(R_{C-2})_2$,
 $-C(O)R_{C-2}$, $-C(O)_2R_{C-2}$, $-C(O)N(R_{C-2})_2$, $-SCN$, $-S(O)N(R_{C-2})_2$, $-S(O)_2N(R_{C-2})_2$,
 $-NR_{C-2}S(O)_2R_{C-2}$, R_5 , or R_6 ;

20 Each R_{C-2} is independently H, alkyl, cycloalkyl, heterocycloalkyl, alkyl
substituted with 1 substituent selected from R_{C-5} , cycloalkyl substituted with 1
substituent selected from R_{C-5} , heterocycloalkyl substituted with 1 substituent selected
from R_{C-5} , haloalkyl, halocycloalkyl, haloheterocycloalkyl, phenyl, or substituted
phenyl;

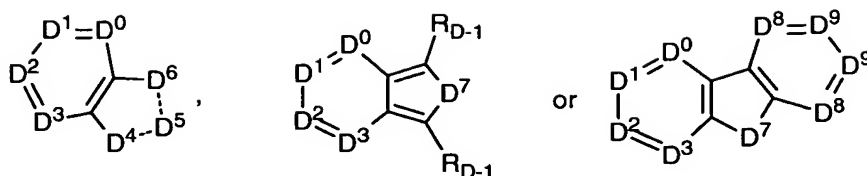
25 Each R_{C-3} is independently H, alkyl, or substituted alkyl;

R_{C-4} is H, alkyl, an amino protecting group, or an alkyl group having 1-3
substituents selected from F, Cl, Br, I, $-OH$, $-CN$, $-NH_2$, $-NH(alkyl)$, or $-N(alkyl)_2$;

R_{C-5} is $-CN$, $-CF_3$, $-NO_2$, $-OR_{C-6}$, $-SR_{C-6}$, $-N(R_{C-6})_2$, $-C(O)R_{C-6}$, $-SOR_{C-6}$,
 $-SO_2R_{C-6}$, $-C(O)N(R_{C-6})_2$, $-NR_{C-6}C(O)R_{C-6}$, $-S(O)_2N(R_{C-6})_2$, or $-NR_{C-6}S(O)_2R_{C-6}$;

30 Each R_{C-6} is independently H, alkyl, cycloalkyl, heterocycloalkyl, haloalkyl,
halocycloalkyl, or haloheterocycloalkyl;

wherein W is (D):



provided that the bond between the $-C(=X)-$ group and the W group may be attached at any available carbon atom within the D group as provided in R_{D-1} , R_{D-3} , and R_{D-4} ;

- D^0 , D^1 , D^2 , and D^3 are N or $C(R_{D-1})$ provided that up to one of D^0 , D^1 , D^2 , or D^3 is N and the others are $C(R_{D-1})$, further provided that when the core molecule is attached at D^2 and D^0 or D^1 is N, D^3 is $C(H)$, and further provided that there is only one attachment to the core molecule;

- $D^4---D^5---D^6$ is selected from $N(R_{D-2})-C(R_{D-3})=C(R_{D-3})$, $N=C(R_{D-3})-C(R_{D-4})_2$, $C(R_{D-3})=C(R_{D-3})-N(R_{D-2})$, $C(R_{D-3})_2-N(R_{D-2})-C(R_{D-3})_2$, $C(R_{D-4})_2-C(R_{D-3})=N$, $N(R_{D-2})-C(R_{D-3})_2-C(R_{D-3})_2$, $C(R_{D-3})_2-C(R_{D-3})_2-N(R_{D-2})$, $O-C(R_{D-3})=C(R_{D-3})$, $O-C(R_{D-3})_2-C(R_{D-3})_2$, $C(R_{D-3})_2-O-C(R_{D-3})_2$, $C(R_{D-3})=C(R_{D-3})-O$, $C(R_{D-3})_2-C(R_{D-3})_2-O$, $S-C(R_{D-3})=C(R_{D-3})$, $S-C(R_{D-3})_2-C(R_{D-3})_2$, $C(R_{D-3})_2-S-C(R_{D-3})_2$, $C(R_{D-3})=C(R_{D-3})-S$, or $C(R_{D-3})_2-C(R_{D-3})_2-S$;

- provided that when $C(X)$ is attached to W at D^2 and D^6 is O, $N(R_{D-2})$, or S, D^4---D^5 is not $CH=CH$;

and further provided that when $C(X)$ is attached to W at D^2 and D^4 is O, $N(R_{D-2})$, or S, D^5---D^6 is not $CH=CH$;

- Each R_{D-1} is independently H, F, Br, I, Cl, $-CN$, $-CF_3$, $-OR_{D-5}$, $-SR_{D-5}$, $-N(R_{D-5})_2$, or a bond to $-C(X)-$ provided that only one of R_{D-1} , R_{D-3} , and R_{D-4} is said bond;

Each R_{D-2} is independently H, alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, R_5 , or R_6 ;

- Each R_{D-3} is independently H, F, Br, Cl, I, alkyl, substituted alkyl, haloalkyl, alkenyl, substituted alkenyl, haloalkenyl, alkynyl, substituted alkynyl, haloalkynyl, heterocycloalkyl, substituted heterocycloalkyl, lactam heterocycloalkyl, $-CN$, $-NO_2$, $-OR_{D-10}$, $-C(O)N(R_{D-11})_2$, $-NR_{D-10}COR_{D-12}$, $-N(R_{D-10})_2$, $-SR_{D-10}$, $-S(O)_2R_{D-10}$, $-C(O)R_{D-12}$, $-CO_2R_{D-10}$, aryl, R_5 , R_6 , or a bond to $-C(X)-$ provided that only one of R_{D-1} , R_{D-3} , and R_{D-4} is said bond;

Each R_{D-4} is independently H, F, Br, Cl, I, alkyl, substituted alkyl, haloalkyl, alkenyl, substituted alkenyl, haloalkenyl, alkynyl, substituted alkynyl, haloalkynyl, heterocycloalkyl, substituted heterocycloalkyl, lactam heterocycloalkyl, -CN, -NO₂, -OR_{D-10}, -C(O)N(R_{D-11})₂, -NR_{D-10}COR_{D-12}, -N(R_{D-11})₂, -SR_{D-10}, -CO₂R_{D-10}, aryl, R₅,
 5 R₆, or a bond to -C(X)- provided that only one of R_{D-1}, R_{D-3}, and R_{D-4} is said bond;

Each R_{D-5} is independently H, C₁₋₃ alkyl, or C₂₋₄ alkenyl;

D⁷ is O, S, or N(R_{D-2});

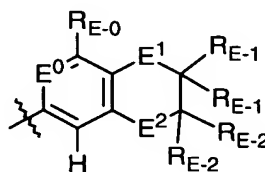
D⁸ and D⁹ are C(R_{D-1}), provided that when the molecule is attached to the phenyl moiety at D⁹, D⁸ is CH;

10 Each R_{D-10} is H, alkyl, cycloalkyl, haloalkyl, substituted phenyl, or substituted naphthyl;

Each R_{D-11} is independently H, alkyl, cycloalkyl, heterocycloalkyl, alkyl substituted with 1 substituent selected from R₁₃, cycloalkyl substituted with 1 substituent selected from R₁₃, heterocycloalkyl substituted with 1 substituent selected
 15 from R₁₃, haloalkyl, halocycloalkyl, haloheterocycloalkyl, phenyl, or substituted phenyl;

R_{D-12} is H, alkyl, substituted alkyl, cycloalkyl, haloalkyl, heterocycloalkyl, substituted heterocycloalkyl, substituted phenyl, or substituted naphthyl;

20 wherein W is (E):



E⁰ is CH or N;

R_{E-0} is H, F, Cl, Br, I, alkyl, alkenyl, alkynyl, cycloalkyl, heterocycloalkyl, haloalkyl, haloalkenyl, haloalkynyl, halocycloalkyl, haloheterocycloalkyl, substituted
 25 alkyl, substituted alkenyl, substituted alkynyl, substituted cycloalkyl, substituted heterocycloalkyl, aryl, R₅, R₆, -OR_{E-3}, -SR_{E-3}, -N(R_{E-3})₂, -C(O)R_{E-3}, -CN, -C(O)N(R_{E-3})₂, -NR_{E-3}C(O)R_{E-3}, -S(O)R_{E-3}, -S(O)R_{E-5}, -OS(O)₂R_{E-3}, -NR_{E-3}S(O)₂R_{E-3}, -NO₂, or -N(H)C(O)N(H)R_{E-3};

E¹ is O, CR_{E-1-1}, or C(R_{E-1-1})₂, provided that when E¹ is CR_{E-1-1}, one R_{E-1} is a
 30 bond to CR_{E-1-1}, and further provided that at least one of E¹ or E² is O;

Each R_{E-1-1} is independently H, F, Br, Cl, CN, alkyl, haloalkyl, substituted alkyl, alkynyl, cycloalkyl, $-OR_E$, or $-N(R_E)_2$, provided that at least one R_{E-1-1} is H when E^1 is $C(R_{E-1-1})_2$;

Each R_{E-1} is independently H, alkyl, substituted alkyl, haloalkyl, cycloalkyl, heterocycloalkyl, or a bond to E^1 provided that E^1 is CR_{E-1-1} ;

E^2 is O, CR_{E-2-2} , or $C(R_{E-2-2})_2$, provided that when E^2 is CR_{E-2-2} , one R_{E-2} is a bond to CR_{E-2-2} , and further provided that at least one of E^1 or E^2 is O;

Each R_{E-2-2} is independently H, F, Br, Cl, CN, alkyl, haloalkyl, substituted alkyl, alkynyl, cycloalkyl, $-OR_E$, or $-N(R_E)_2$, provided that at least one R_{E-2-2} is H when E^2 is $C(R_{E-2-2})_2$;

Each R_{E-2} is independently H, alkyl, substituted alkyl, haloalkyl, cycloalkyl, heterocycloalkyl, or a bond to E^2 provided that E^2 is CR_{E-2-2} ;

Each R_E is independently H, alkyl, cycloalkyl, heterocycloalkyl, haloalkyl, halocycloalkyl, or haloheterocycloalkyl;

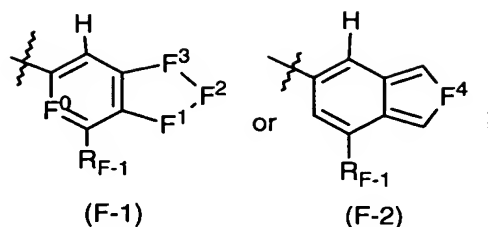
Each R_{E-3} is independently H, alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, R_5 , R_6 , phenyl, or phenyl having 1 substituent selected from R_9 and further having 0-3 substituents independently selected from F, Cl, Br, or I or substituted phenyl;

R_{E-4} is H, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, R_5 , R_6 , phenyl, or substituted phenyl;

Each R_{E-5} is independently H, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, R_5 , or R_6 ;

Each R_{E-6} is independently alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, R_5 , R_6 , phenyl, or phenyl having 1 substituent selected from R_9 and further having 0-3 substituents independently selected from F, Cl, Br, or I;

wherein W is (F):



F^0 is C(H) wherein F^1 --- F^2 --- F^3 is selected from O-C(R_{F-2})=N,

O-C(R_{F-3})(R_{F-2})-N(R_{F-4}), O-C(R_{F-3})(R_{F-2})-S, O-N=C(R_{F-3}), O-C(R_{F-2})(R_{F-3})-O,
S-C(R_{F-2})=N, S-C(R_{F-3})(R_{F-2})-N(R_{F-4}), S-N=C(R_{F-3}), N=C(R_{F-2})-O,

- 5 N=C(R_{F-2})-S, N=C(R_{F-2})-N(R_{F-4}), N(R_{F-4})-N=C(R_{F-3}), N(R_{F-4})-C(R_{F-3})(R_{F-2})-O,
N(R_{F-4})-C(R_{F-3})(R_{F-2})-S, N(R_{F-4})-C(R_{F-3})(R_{F-2})-N(R_{F-4}), C(R_{F-3})₂-O-N(R_{F-4}),
C(R_{F-3})₂-N(R_{F-4})-O, C(R_{F-3})₂-N(R_{F-4})-S, C(R_{F-3})=N-O, C(R_{F-3})=N-S,
C(R_{F-3})=N-N(R_{F-4}), or C(R_{F-3})₂-C(R_{F-2})(R_{F-3})-C(R_{F-3})₂;

F^0 is N wherein F^1 --- F^2 --- F^3 is selected from O-C(R_{F-2})=N,

- 10 O-C(R_{F-3})(R_{F-2})-N(R_{F-4}), O-C(R_{F-3})(R_{F-2})-S, O-N=C(R_{F-3}) O-C(R_{F-2})(R_{F-3})-O,
S-C(R_{F-2})=N, S-C(R_{F-3})(R_{F-2})-N(R_{F-4}), S-N=C(R_{F-3}), N=C(R_{F-2})-O, N=C(R_{F-2})-S,
N=C(R_{F-2})-N(R_{F-4}), N(R_{F-4})-N=C(R_{F-3}), N(R_{F-4})-C(R_{F-3})(R_{F-2})-O,
N(R_{F-4})-C(R_{F-3})(R_{F-2})-S, N(R_{F-4})-C(R_{F-3})(R_{F-2})-N(R_{F-4}), C(R_{F-3})₂-O-N(R_{F-4}),
C(R_{F-3})₂-N(R_{F-4})-O, C(R_{F-3})₂-N(R_{F-4})-S, C(R_{F-3})=N-O, C(R_{F-3})=N-S,
15 C(R_{F-3})=N-N(R_{F-4}), C(R_{F-3})=C(R_{F-2})-C(R_{F-3})₂, or C(R_{F-3})₂-C(R_{F-2})(R_{F-3})-C(R_{F-3})₂;

F^4 is N(R_{F-7}), O, or S;

R_{F-1} is H, F, Cl, Br, I, -CN, -CF₃, -OR_{F-8}, -SR_{F-8}, or -N(R_{F-8})₂;

- R_{F-2} is H, F, alkyl, haloalkyl, substituted alkyl, lactam heterocycloalkyl,
phenoxy, substituted phenoxy, R₅, R₆, -N(R_{F-4})-aryl, -N(R_{F-4})-substituted phenyl,
20 -N(R_{F-4})-substituted naphthyl, -O-substituted phenyl, -O-substituted naphthyl,
-S-substituted phenyl, -S-substituted naphthyl, or alkyl substituted on the ω carbon
with R_{F-9} ;

- R_{F-3} is H, F, Br, Cl, I, alkyl, substituted alkyl, haloalkyl, alkenyl, substituted
alkenyl, haloalkenyl, alkynyl, substituted alkynyl, haloalkynyl, heterocycloalkyl,
25 substituted heterocycloalkyl, lactam heterocycloalkyl, -CN, -NO₂, -OR_{F-8},
-C(O)N(R_{F-8})₂, -NHR_{F-8}, -NR_{F-8}COR_{F-8}, -N(R_{F-8})₂, -SR_{F-8}, -C(O)R_{F-8}, -CO₂R_{F-8}, aryl,
R₅, or R₆;

R_{F-4} is H, or alkyl;

- Each R_{F-5} is independently F, Br, Cl, I, alkyl, substituted alkyl, haloalkyl,
30 alkenyl, substituted alkenyl, haloalkenyl, alkynyl, substituted alkynyl, haloalkynyl,

-CN, -CF₃, -OR_{F-8}, -C(O)NH₂, -NHR_{F-8}, -SR_{F-8}, -CO₂R_{F-8}, aryl, phenoxy, substituted phenoxy, heteroaryl, -N(R_{F-4})-aryl, or -O-substituted aryl;

One of R_{F-6} is H, alkyl, substituted alkyl, haloalkyl, alkenyl, substituted alkenyl, haloalkenyl, alkynyl, substituted alkynyl, haloalkynyl, -CN, F, Br, Cl, I,
 5 -OR_{F-8}, -C(O)NH₂, -NHR_{F-8}, -SR_{F-8}, -CO₂R_{F-8}, aryl, R₅, or R₆, and each of the other two R_{F-6} is independently selected from alkyl, substituted alkyl, haloalkyl, alkenyl, substituted alkenyl, haloalkenyl, alkynyl, substituted alkynyl, haloalkynyl, -CN, F, Br, Cl, I, -OR_{F-8}, -C(O)NH₂, -NHR_{F-8}, -SR_{F-8}, -CO₂R_{F-8}, aryl, R₅, or R₆;

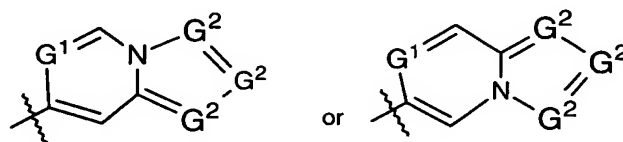
R_{F-7} is H, alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl,
 10 substituted cycloalkyl, phenyl, or phenyl having 1 substituent selected from R₉ and further having 0-3 substituents independently selected from F, Cl, Br, or I;

R_{F-8} is H, alkyl, substituted alkyl, cycloalkyl, haloalkyl, heterocycloalkyl, substituted heterocycloalkyl, substituted phenyl, or substituted naphthyl;

R_{F-9} is aryl, R₅, or R₆;

15

wherein W is (G):



G¹ is N or CH;

Each G² is N or C(R_{G-1}), provided that no more than one G² is N;

Each R_{G-1} is independently H, alkyl, substituted alkyl, haloalkyl, alkenyl,
 20 substituted alkenyl, haloalkenyl, alkynyl, substituted alkynyl, haloalkynyl, -CN, -NO₂, F, Br, Cl, I, -C(O)N(R_{G-3})₂, -N(R_{G-3})₂, -SR_{G-6}, -S(O)₂R_{G-6}, -OR_{G-6}, -C(O)R_{G-6}, -CO₂R_{G-6}, aryl, R₅, R₆, or two R_{G-1} on adjacent carbon atoms may combine for W to be a 6-5-6 fused-tricyclic-heteroaromatic-ring system optionally substituted on the
 25 newly formed ring where valency allows with 1-2 substituents independently selected from F, Cl, Br, I, and R_{G-2};

R_{G-2} is alkyl, alkenyl, alkynyl, cycloalkyl, heterocycloalkyl, haloalkyl, haloalkenyl, haloalkynyl, halocycloalkyl, haloheterocycloalkyl, -OR_{G-8}, -SR_{G-8}, -S(O)₂R_{G-8}, -S(O)R_{G-8}, -OS(O)₂R_{G-8}, -N(R_{G-8})₂, -C(O)R_{G-8}, -C(S)R_{G-8}, -C(O)OR_{G-8},
 30 -CN, -C(O)N(R_{G-8})₂, -NR_{G-8}C(O)R_{G-8}, -S(O)₂N(R_{G-8})₂, -NR_{G-8}S(O)₂R_{G-8}, -NO₂,

-N(R_{G-8})C(O)N(R_{G-8})₂, substituted alkyl, substituted alkenyl, substituted alkynyl, substituted cycloalkyl, substituted heterocycloalkyl, lactam heterocycloalkyl, phenyl, phenyl having 0-4 substituents independently selected from F, Cl, Br, I and R_{G-7}, naphthyl, or naphthyl having 0-4 substituents independently selected from F, Cl, Br, I,
 5 or R_{G-7};

provided that when G² adjacent to the bridge N is C(R_{G-1}) and the other G² are CH, that R_{G-1} is other than H, F, Cl, I, alkyl, substituted alkyl or alkynyl;

Each R_{G-3} is independently H, alkyl, cycloalkyl, heterocycloalkyl, alkyl substituted with 1 substituent selected from R_{G-4}, cycloalkyl substituted with 1
 10 substituent selected from R_{G-4}, heterocycloalkyl substituted with 1 substituent selected from R_{G-4}, haloalkyl, halocycloalkyl, haloheterocycloalkyl, phenyl, or substituted phenyl;

R_{G-4} is -OR_{G-5}, -SR_{G-5}, -N(R_{G-5})₂, -C(O)R_{G-5}, -SOR_{G-5}, -SO₂R_{G-5}, -C(O)N(R_{G-5})₂, -CN, -CF₃, -NR_{G-5}C(O)R_{G-5}, -S(O)₂N(R_{G-5})₂, -NR_{G-5}S(O)₂R_{G-5}, or
 15 -NO₂;

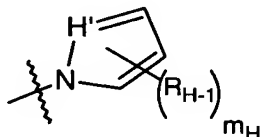
Each R_{G-5} is independently H, alkyl, cycloalkyl, heterocycloalkyl, haloalkyl, halocycloalkyl, or haloheterocycloalkyl;

R_{G-6} is H, alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, phenyl, or phenyl having 0-4 substituents independently
 20 selected from F, Cl, Br, I, and R_{G-7};

R_{G-7} is alkyl, substituted alkyl, haloalkyl, -OR_{G-5}, -CN, -NO₂, -N(R_{G-3})₂;

Each R_{G-8} is independently H, alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, phenyl, or phenyl substituted with 0-4 independently
 25 selected from F, Cl, Br, I, or R_{G-7};

wherein W is (H)



H' is N or CH;

Each R_{H-1} is independently F, Cl, Br, I, -CN, -NO₂, alkyl, haloalkyl, substituted alkyl, alkenyl, haloalkenyl, substituted alkenyl, alkynyl, haloalkynyl,
 30

substituted alkynyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, lactam heterocycloalkyl, aryl, R_5 , R_6 , $-OR_8$, $-SR_8$, $-SOR_8$, $-SO_2R_8$, $-SCN$, $-S(O)N(R_8)_2$, $-S(O)_2N(R_8)_2$, $-C(O)R_8$, $-C(O)_2R_8$, $-C(O)N(R_8)_2$, $C(R_8)=N-OR_8$, $-NC(O)R_5$,
 5 $-NC(O)R_{H-3}$, $-NC(O)R_6$, $-N(R_8)_2$, $-NR_8C(O)R_8$, $-NR_8S(O)_2R_8$, or two R_{H-1} on adjacent carbon atoms may fuse to form a 6-membered ring to give a 5-6 fused, bicyclic moiety where the 6-membered ring is optionally substituted with 1-3 substituents selected from R_{H-2} ;

m_H is 0, 1, or 2;

10 R_{H-2} is alkyl, alkenyl, alkynyl, cycloalkyl, heterocycloalkyl, haloalkyl, haloalkenyl, haloalkynyl, halocycloalkyl, haloheterocycloalkyl, $-OR_{H-3}$, $-SR_{H-3}$, $-S(O)_2R_{H-3}$, $-S(O)R_{H-3}$, $-OS(O)_2R_{H-3}$, $-N(R_{H-3})_2$, $-C(O)R_{H-3}$, $-C(S)R_{H-3}$, $-C(O)OR_{H-3}$, $-CN$, $-C(O)N(R_{H-3})_2$, $-NR_{H-3}C(O)R_{H-3}$, $-S(O)_2N(R_{H-3})_2$, $-NR_{H-3}S(O)_2R_{H-3}$, $-NO_2$, $-N(R_{H-3})C(O)N(R_{H-3})_2$, substituted alkyl, substituted alkenyl, substituted alkynyl,
 15 substituted cycloalkyl, substituted heterocycloalkyl, lactam heterocycloalkyl, phenyl, phenyl having 0-4 substituents independently selected from F, Cl, Br, I and R_7 , naphthyl, naphthyl having 0-4 substituents independently selected from F, Cl, Br, I, or R_7 , or two R_{H-2} on adjacent carbon atoms may combine to form a three-ring-fused-5-6-6 system optionally substituted with up to 3 substituents independently selected
 20 from Br, Cl, F, I, $-CN$, $-NO_2$, $-CF_3$, $-N(R_{H-3})_2$, $-N(R_{H-3})C(O)R_{H-3}$, alkyl, alkenyl, and alkynyl;

Each R_{H-3} is independently H, alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, phenyl, or phenyl substituted with 0-4 independently
 25 selected from F, Cl, Br, I, or R_7 ;

or pharmaceutically acceptable salt, racemic mixture, or pure enantiomer thereof.

8. The method of claim 7, wherein the symptomatic relief would be to treat the mammal for pain, inflammation, cancer, or diabetes.

30 9. The method of claim 8, wherein the mammal would optionally receive an antiviral or antibacterial agent for a therapeutically effective interval, and wherein infection or inflammation is caused by rheumatoid arthritis; rheumatoid spondylitis; muscle degeneration; osteoporosis; osteoarthritis; psoriasis; contact dermatitis; bone

resorption diseases; atherosclerosis; Paget's disease; uveitis; gouty arthritis; inflammatory bowel disease; adult respiratory distress syndrome; Crohn's disease; rhinitis; ulcerative colitis; anaphylaxis; asthma; Reiter's syndrome; tissue rejection of a graft; ischemia reperfusion injury; brain trauma; stroke; multiple sclerosis; cerebral malaria; sepsis; septic shock; toxic shock syndrome; fever and myalgias due to infection; HIV-1, HIV-2, HIV-3; cytomegalovirus; influenza; adenovirus; a herpes virus; or herpes zoster.

10. The method of claim 8, wherein cancer is multiple myeloma; acute and chronic myelogenous leukemia; or cancer-associated cachexia, and where the mammal would optionally receive at least one of an anticancer agent or antiemetic agent for a therapeutically effective interval.

11. The method of claim 8, wherein diabetes is type I and type II diabetes, and wherein the mammal optionally receives at least one agent for the treatment of diabetes for a therapeutically effective interval.

12. The method of claim 8, wherein diabetes is associated with pancreatic beta cell destruction.

13. The method of claim 7, wherein X is O and R₁ is H.

14. The method of claim 13, wherein W is (C), (D), (E), (F), and (G).

15. The method of claim 14, wherein Azabicyclo is I, II, V and VII.

16. The method of claim 15, wherein W is 4-chlorophen-1-yl; dibenzo[b,d]thiophene-2-yl; isoquinoline-3-yl; furo[2,3-c]pyridine-5-yl; furo[3,2-c]pyridine-6-yl; 1,3-benzodioxole-5-yl; 2,3-dihydro-1,4-benzodioxine-6-yl; 2,3-dihydro-1,4-benzodioxine-7-yl; 1,3-benzoxazole-5-yl; thieno[2,3-c]pyridine-5-yl; thieno[3,2-c]pyridine-6-yl; [1]benzothieno[3,2-c]pyridine-3-yl; 1,3-benzothiazole-6-yl; thieno[3,4-c]pyridine-6-yl; 2,3-dihydro-1-benzofuran-5-yl; 1-benzofuran-5-yl; furo[3,2-c]pyridine-6-yl; [1]benzothieno[2,3-c]pyridine-3-yl; dibenzo[b,d]furan-2-yl; 1-benzofuran-6-yl; 2-naphthyl; 1H-indole-6-yl; pyrrolo[1,2-c]pyrimidine-3-yl; 1-

benzothiophene-5-yl; 1-benzothiophene-5-yl; 1-benzothiophene-6-yl; pyrrolo[1,2-a]pyrazine-3-yl; 1H-indole-6-yl; pyrazino[1,2-a]indole-3-yl; 1,3-benzothiazole-6-yl; [1]benzofuro[2,3-c]pyridine-3-yl; [1]benzofuro[2,3-c]pyridine-3-yl; 2H-chromene-6-yl; indolizine-6-yl; and [1,3]dioxolo[4,5-c]pyridine-6-yl; any of which is optionally
 5 substituted as allowed in claim 15.

17. The method of claim 16, wherein the agonist is

- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-4-chlorobenzamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]dibenzo[b,d]thiophene-2-carboxamide;
- 10 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]isoquinoline-3-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1,3-benzodioxole-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-methylfuro[2,3-c]pyridine-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2,3-dihydro-1,4-benzodioxine-6-carboxamide;
- 15 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-methylfuro[2,3-c]pyridine-5-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]isoquinoline-3-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-methylfuro[2,3-c]pyridine-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1,3-benzoxazole-5-carboxamide;
- 20 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-methyl-1,3-benzoxazole-5-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]thieno[2,3-c]pyridine-5-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]thieno[3,2-c]pyridine-6-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]furo[2,3-c]pyridine-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-ethylfuro[2,3-c]pyridine-5-carboxamide;
- 25 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-isopropylfuro[2,3-c]pyridine-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]thieno[2,3-c]pyridine-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]thieno[3,2-c]pyridine-6-carboxamide;
- 5-{[(2R)-7-azoniabicyclo[2.2.1]hept-2-ylamino]carbonyl}-3-ethylfuro[2,3-c]pyridin-6-ium dichloride;
- 30 5-{[(2R)-7-azoniabicyclo[2.2.1]hept-2-ylamino]carbonyl}-3-isopropylfuro[2,3-c]pyridin-6-ium dichloride;
- N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]furo[2,3-c]pyridine-5-carboxamide;
- N-1-azabicyclo[2.2.2]oct-3-yl[1]benzothieno[3,2-c]pyridine-3-carboxamide;

- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1,3-benzothiazole-6-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-chlorofuro[2,3-c]pyridine-5-carboxamide;
 N-1-azabicyclo[2.2.2]oct-3-ylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]thieno[3,4-c]pyridine-6-carboxamide;
 5 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]-3-methylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-3-methylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2,3-dihydro-1-benzofuran-5-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]thieno[2,3-c]pyridine-5-carboxamide;
 10 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]furo[3,2-c]pyridine-6-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]thieno[3,2-c]pyridine-6-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]3-ethylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]3-isopropylfuro[2,3-c]pyridine-5-carboxamide;
 15 carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-chlorofuro[2,3-c]pyridine-5-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]3-chlorofuro[2,3-c]pyridine-5-carboxamide;
 N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
 20 N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]furo[3,2-c]pyridine-6-carboxamide;
 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]-4-chlorobenzamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]thieno[3,4-c]pyridine-6-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]dibenzo[b,d]thiophene-2-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-1-benzofuran-5-carboxamide;
 25 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl][1]benzothieno[2,3-c]pyridine-3-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl][1]benzothieno[2,3-c]pyridine-3-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-1-benzofuran-5-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]dibenzo[b,d]furan-2-carboxamide;
 30 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]furo[3,2-c]pyridine-6-carboxamide;
 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]-1-benzofuran-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-bromofuro[2,3-c]pyridine-5-carboxamide;

- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-bromofuro[2,3-c]pyridine-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-6-carboxamide;
- N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-2-naphthamide;
- 5 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;
- N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]thieno[2,3-c]pyridine-5-carboxamide;
- N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]thieno[3,2-c]pyridine-6-carboxamide;
- N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-1H-indole-6-carboxamide;
- N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]thieno[2,3-c]pyridine-5-
- 10 carboxamide;
- 3-methyl-N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
- N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-5-carboxamide;
- N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]thieno[3,2-c]pyridine-6-
- 15 carboxamide;
- N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;
- N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-1,3-benzothiazole-6-carboxamide;
- N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;
- 20 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzothiophene-5-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;
- N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;
- N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-3-bromofuro[2,3-c]pyridine-5-carboxamide;
- N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-1,3-benzodioxole-5-carboxamide;
- 25 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-bromo-1-benzofuran-5-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-bromo-1-benzofuran-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-bromothieno[2,3-c]pyridine-5-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-bromothieno[2,3-c]pyridine-5-carboxamide;
- 30 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-1-benzothiophene-5-carboxamide;
- N-[(3S)-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-methyl-1-benzofuran-5-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-methyl-1-benzofuran-5-carboxamide;

- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-methyl-1-benzofuran-6-carboxamide;
 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]-1-benzofuran-6-carboxamide;
 N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-6-carboxamide;
 N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-1-benzothiophene-5-carboxamide;
 5 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzothiophene-6-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]pyrrolo[1,2-a]pyrazine-3-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-1-benzothiophene-6-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-methyl-1H-indole-6-carboxamide;
 N-[(3S)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-5-carboxamide;
 10 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-isopropyl-1-benzofuran-5-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-isopropyl-1-benzofuran-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-ethynylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1H-indazole-6-carboxamide;
 15 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-methyl-1-benzofuran-5-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-2-methyl-1-benzofuran-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]pyrazino[1,2-a]indole-3-carboxamide;
 3-bromo-N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
 20 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]pyrrolo[1,2-a]pyrazine-3-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-7-methoxy-2-naphthamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]pyrrolo[1,2-a]pyrazine-3-carboxamide;
 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]-1,3-benzothiazole-6-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-3-bromo-1-benzofuran-6-carboxamide;
 25 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl][1]benzofuro[2,3-c]pyridine-3-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl][1]benzofuro[2,3-c]pyridine-3-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-ethynyl-1-benzofuran-5-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-ethynyl-1-benzofuran-5-carboxamide;
 30 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2H-chromene-6-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-prop-1-ynyl-1-benzofuran-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-phenyl-1,3-benzodioxole-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-6-bromopyrrolo[1,2-a]pyrazine-3-carboxamide;

- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-prop-1-ynylfuro[2,3-c]pyridine-5-carboxamide;
- N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]pyrrolo[1,2-a]pyrazine-3-carboxamide;
- 5 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]indolizine-6-carboxamide;
- 2-amino-N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1,3-benzothiazole-6-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-6-ethynylpyrrolo[1,2-a]pyrazine-3-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-8-methoxy-2-naphthamide;
- N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]indolizine-6-carboxamide;
- 10 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl][1,3]dioxolo[4,5-c]pyridine-6-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl][1,3]dioxolo[4,5-c]pyridine-6-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-cyano-1-benzofuran-5-carboxamide;
- N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl][1,3]dioxolo[4,5-c]pyridine-6-carboxamide;
- 15 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-ethyl-2,3-dihydro-1,4-benzodioxine-6-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-ethyl-2,3-dihydro-1,4-benzodioxine-7-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-7-hydroxy-2-naphthamide;
- 20 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-ethynylfuro[2,3-c]pyridine-5-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-6-chloroisoquinoline-3-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-6-methylisoquinoline-3-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-6-methylisoquinoline-3-carboxamide;
- 25 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-cyanofuro[2,3-c]pyridine-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-naphthamide; and
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]dibenzo[b,d]furan-2-carboxamide;

provided that the agonist is the free base or a pharmaceutically acceptable salt thereof.

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18. The method of claim 17, wherein the symptomatic relief would be to treat the mammal for pain, inflammation, cancer, or diabetes.

19. The method of claim 18, wherein the mammal would optionally receive an antiviral or antibacterial agent for a therapeutically effective interval, and wherein infection or inflammation is caused by rheumatoid arthritis; rheumatoid spondylitis; muscle degeneration; osteoporosis; osteoarthritis; psoriasis; contact dermatitis; bone
 5 resorption diseases; atherosclerosis; Paget's disease; uveitis; gouty arthritis; inflammatory bowel disease; adult respiratory distress syndrome; Crohn's disease; rhinitis; ulcerative colitis; anaphylaxis; asthma; Reiter's syndrome; tissue rejection of a graft; ischemia reperfusion injury; brain trauma; stroke; multiple sclerosis; cerebral malaria; sepsis; septic shock; toxic shock syndrome; fever and myalgias due to
 10 infection; HIV-1, HIV-2, HIV-3; cytomegalovirus; influenza; adenovirus; a herpes virus; or herpes zoster.

20. The method of claim 18, wherein cancer is multiple myeloma; acute and chronic myelogenous leukemia; or cancer-associated cachexia, and where the
 15 mammal would optionally receive at least one of an anticancer agent or antiemetic agent for a therapeutically effective interval.

21. The method of claim 18, wherein diabetes is type I and type II diabetes, and wherein the mammal optionally receives at least one agent for the treatment of
 20 diabetes for a therapeutically effective interval.

22. The method of claim 18, wherein diabetes is associated with pancreatic beta cell destruction.

23. The method of claim 18, wherein the compound is
 25 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]dibenzo[b,d]thiophene-2-carboxamide;
 N-1-azabicyclo[2.2.2]oct-3-yl[1]benzothieno[3,2-c]pyridine-3-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl][1]benzothieno[2,3-c]pyridine-3-carboxamide;
 and
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl][1]benzothieno[2,3-c]pyridine-3-
 30 carboxamide;

provided that the agonist is the free base or a pharmaceutically acceptable salt thereof.

24. The method of claim 18, wherein the compound is

N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-2-naphthamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-7-methoxy-2-naphthamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-8-methoxy-2-naphthamide;

5 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-7-hydroxy-2-naphthamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-naphthamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]isoquinoline-3-carboxamide;

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]isoquinoline-3-carboxamide;

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-6-chloroisoquinoline-3-carboxamide;

10 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-6-methylisoquinoline-3-carboxamide; and

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-6-methylisoquinoline-3-carboxamide;

provided that the agonist is the free base or a pharmaceutically acceptable salt thereof.

25. The method of claim 18, wherein the compound is

15 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]furo[3,2-c]pyridine-6-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-methylfuro[2,3-c]pyridine-5-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-methylfuro[2,3-c]pyridine-5-carboxamide;

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-methylfuro[2,3-c]pyridine-5-

20 carboxamide;

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]furo[2,3-c]pyridine-5-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-ethylfuro[2,3-c]pyridine-5-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-isopropylfuro[2,3-c]pyridine-5-carboxamide;

N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]furo[2,3-c]pyridine-5-carboxamide;

25 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-chlorofuro[2,3-c]pyridine-5-carboxamide;

N-1-azabicyclo[2.2.2]oct-3-ylfuro[2,3-c]pyridine-5-carboxamide;

N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]-3-methylfuro[2,3-c]pyridine-5-carboxamide;

N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-3-methylfuro[2,3-c]pyridine-5-

carboxamide;

30 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]3-ethylfuro[2,3-c]pyridine-5-carboxamide;

N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]3-isopropylfuro[2,3-c]pyridine-5-

carboxamide;

- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-chlorofuro[2,3-c]pyridine-5-carboxamide;
- N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-3-chlorofuro[2,3-c]pyridine-5-carboxamide;
- N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
- 5 N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]furo[3,2-c]pyridine-6-carboxamide;
- N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]furo[3,2-c]pyridine-6-carboxamide;
- N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-bromofuro[2,3-c]pyridine-5-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-bromofuro[2,3-c]pyridine-5-
- 10 carboxamide;
- 3-methyl-N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
- N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-3-bromofuro[2,3-c]pyridine-5-carboxamide;
- N-[(3S)-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
- 15 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-ethynylfuro[2,3-c]pyridine-5-carboxamide;
- 3-bromo-N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-prop-1-ynylfuro[2,3-c]pyridine-5-carboxamide;
- 20 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-ethynylfuro[2,3-c]pyridine-5-carboxamide; and
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-cyanofuro[2,3-c]pyridine-5-carboxamide;
- provided that the agonist is the free base or a pharmaceutically acceptable salt thereof.
- 25 26. The method of claim 18, wherein the compound is
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2,3-dihydro-1-benzofuran-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-5-carboxamide;
- N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-1-benzofuran-5-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-1-benzofuran-5-carboxamide;
- 30 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]-1-benzofuran-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-6-carboxamide;
- N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-bromo-1-benzofuran-5-carboxamide;

- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-bromo-1-benzofuran-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-methyl-1-benzofuran-5-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-methyl-1-benzofuran-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-methyl-1-benzofuran-6-carboxamide;
 5 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]-1-benzofuran-6-carboxamide;
 N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-6-carboxamide;
 N-[(3S)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-isopropyl-1-benzofuran-5-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-isopropyl-1-benzofuran-5-
 10 carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-methyl-1-benzofuran-5-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-2-methyl-1-benzofuran-5-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-3-bromo-1-benzofuran-6-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-ethynyl-1-benzofuran-5-carboxamide;
 15 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-ethynyl-1-benzofuran-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-prop-1-ynyl-1-benzofuran-5-carboxamide; and
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-cyano-1-benzofuran-5-carboxamide;

provided that the agonist is the free base or a pharmaceutically acceptable salt thereof.

- 20 27. The method of claim 18, wherein the compound is
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]pyrazino[1,2-a]indole-3-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-1H-indole-6-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-methyl-1H-indole-6-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzothiophene-5-carboxamide;
 25 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-1-benzothiophene-5-carboxamide;
 N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-1-benzothiophene-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzothiophene-6-carboxamide; and
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-1-benzothiophene-6-carboxamide;

provided that the agonist is the free base or a pharmaceutically acceptable salt thereof.

- 30 28. The method of claim 18, wherein the compound is
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]thieno[2,3-c]pyridine-5-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]thieno[3,2-c]pyridine-6-carboxamide;

- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]thieno[3,4-c]pyridine-6-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]thieno[2,3-c]pyridine-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]thieno[3,2-c]pyridine-6-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]thieno[3,4-c]pyridine-6-carboxamide;
 5 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]thieno[2,3-c]pyridine-5-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]thieno[3,2-c]pyridine-6-carboxamide;
 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]thieno[2,3-c]pyridine-5-carboxamide;
 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]thieno[3,2-c]pyridine-6-carboxamide;
 N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]thieno[2,3-c]pyridine-5-
 10 carboxamide;
 N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]thieno[3,2-c]pyridine-6-
 carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-bromothieno[2,3-c]pyridine-5-carboxamide;
 and
 15 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-bromothieno[2,3-c]pyridine-5-
 carboxamide;

provided that the agonist is the free base or a pharmaceutically acceptable salt thereof.

29. The method of claim 18, wherein the compound is

- 20 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1,3-benzothiazole-6-carboxamide;
 N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-1,3-benzothiazole-6-carboxamide;
 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]-1,3-benzothiazole-6-carboxamide;
 2-amino-N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1,3-benzothiazole-6-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1H-indazole-6-carboxamide;
 25 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl][1,3]dioxolo[4,5-c]pyridine-6-carboxamide; and
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl][1,3]dioxolo[4,5-c]pyridine-6-
 carboxamide;

provided that the agonist is the free base or a pharmaceutically acceptable salt thereof.

30. The method of claim 18, wherein the compound is

- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;
 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;

N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;

N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]pyrrolo[1,2-a]pyrazine-3-carboxamide;

5 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]pyrrolo[1,2-a]pyrazine-3-carboxamide;

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]pyrrolo[1,2-a]pyrazine-3-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-6-bromopyrrolo[1,2-a]pyrazine-3-carboxamide;

N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]pyrrolo[1,2-a]pyrazine-3-carboxamide;

10 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-6-ethynylpyrrolo[1,2-a]pyrazine-3-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]indolizine-6-carboxamide; and

N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]indolizine-6-carboxamide;

provided that the agonist is the free base or a pharmaceutically acceptable salt thereof.

15

31. A method of treating a mammal in need thereof, wherein the mammal would receive symptomatic relief by stimulating vascular angiogenesis comprising the administration of an alpha 7 nAChR full agonist.

32. The method of claim 31, wherein the disease or condition is wound healing, healing bone fracture, ischemic heart disease, or stable angina pectoris.

33. The method of claim 31, wherein the wound is from surgery or burn.

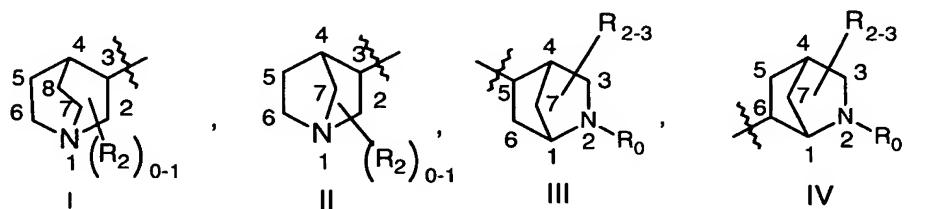
34. The method of claim 31, wherein the full agonist is a compound of formula I:

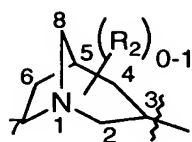


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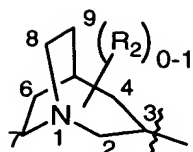
Formula I

wherein Azabicyclo is

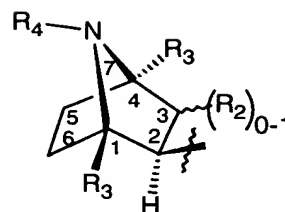




V



VI



VII

X is O, or S;

R₀ is H, lower alkyl, substituted lower alkyl, or lower haloalkyl;

Each R₁ is H, alkyl, cycloalkyl, haloalkyl, substituted phenyl, or substituted naphthyl;

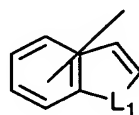
Each R₂ is independently F, Cl, Br, I, alkyl, substituted alkyl, haloalkyl, cycloalkyl, aryl, or R₂ is absent;

R₂₋₃ is H, F, Cl, Br, I, alkyl, haloalkyl, substituted alkyl, cycloalkyl, or aryl;

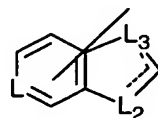
Each R₃ is independently H, alkyl, or substituted alkyl;

R₄ is H, alkyl, an amino protecting group, or an alkyl group having 1-3 substituents selected from F, Cl, Br, I, -OH, -CN, -NH₂, -NH(alkyl), or -N(alkyl)₂;

R₅ is 5-membered heteroaromatic mono-cyclic moieties containing within the ring 1-3 heteroatoms independently selected from the group consisting of -O-, =N-, -N(R₁₀)-, and -S-, and having 0-1 substituent selected from R₉ and further having 0-3 substituents independently selected from F, Cl, Br, or I, or R₅ is 9-membered fused-ring moieties having a 6-membered ring fused to a 5-membered ring and having the formula

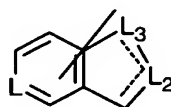


wherein L₁ is O, S, or NR₁₀,



20

wherein L is CR₁₂ or N, L₂ and L₃ are independently selected from CR₁₂, C(R₁₂)₂, O, S, N, or NR₁₀, provided that both L₂ and L₃ are not simultaneously O, simultaneously S, or simultaneously O and S, or



wherein L is CR₁₂ or N, and L₂ and L₃ are independently selected from CR₁₂, O, S, N, or NR₁₀, and each 9-membered fused-ring moiety having 0-1 substituent selected from R₉ and further having 0-3 substituent(s) independently selected from F, Cl, Br, or I, wherein the R₅ moiety attaches to other substituents as defined in formula I at any

5 position as valency allows;

R₆ is 6-membered heteroaromatic mono-cyclic moieties containing within the ring 1-3 heteroatoms selected from =N- and having 0-1 substituent selected from R₉ and 0-3 substituent(s) independently selected from F, Cl, Br, or I, or R₆ is 10-membered heteroaromatic bi-cyclic moieties containing within one or both rings 1-3
 10 heteroatoms selected from =N-, including, but not limited to, quinolinyl or isoquinolinyl, each 10-membered fused-ring moiety having 0-1 substituent selected from R₉ and 0-3 substituent(s) independently selected from F, Cl, Br, or I, wherein the R₆ moiety attaches to other substituents as defined in formula I at any position as valency allows;

15 R₇ is alkyl, substituted alkyl, haloalkyl, -OR₁₁, -CN, -NO₂, -N(R₈)₂;

Each R₈ is independently H, alkyl, cycloalkyl, heterocycloalkyl, alkyl substituted with 1 substituent selected from R₁₃, cycloalkyl substituted with 1 substituent selected from R₁₃, heterocycloalkyl substituted with 1 substituent selected from R₁₃, haloalkyl, halocycloalkyl, haloheterocycloalkyl, phenyl, or substituted
 20 phenyl;

R₉ is alkyl, cycloalkyl, heterocycloalkyl, haloalkyl, halocycloalkyl, haloheterocycloalkyl, -OR₁₄, -SR₁₄, -N(R₁₄)₂, -C(O)R₁₄, -C(O)N(R₁₄)₂, -CN, -NR₁₄C(O)R₁₄, -S(O)₂N(R₁₄)₂, -NR₁₄S(O)₂R₁₄, -NO₂, alkyl substituted with 1-4 substituent(s) independently selected from F, Cl, Br, I, or R₁₃, cycloalkyl substituted
 25 with 1-4 substituent(s) independently selected from F, Cl, Br, I, or R₁₃, or heterocycloalkyl substituted with 1-4 substituent(s) independently selected from F, Cl, Br, I, or R₁₃;

R₁₀ is H, alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, phenyl, or phenyl having 1 substituent selected from R₇ and
 30 further having 0-3 substituents independently selected from F, Cl, Br, or I;

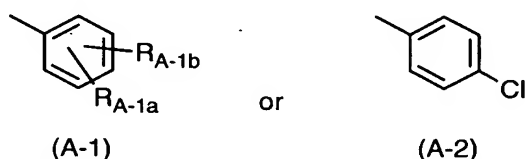
Each R₁₁ is independently H, alkyl, cycloalkyl, heterocycloalkyl, haloalkyl, halocycloalkyl, or haloheterocycloalkyl;

Each R_{12} is independently H, F, Cl, Br, I, alkyl, cycloalkyl, heterocycloalkyl, haloalkyl, halocycloalkyl, haloheterocycloalkyl, substituted alkyl, substituted cycloalkyl, substituted heterocycloalkyl, -CN, -NO₂, -OR₁₄, -SR₁₄, -N(R₁₄)₂, -C(O)R₁₄, -C(O)N(R₁₄)₂, -NR₁₄C(O)R₁₄, -S(O)₂N(R₁₄)₂, -NR₁₄S(O)₂R₁₄, or a bond;

5 R_{13} is -OR₁₄, -SR₁₄, -N(R₁₄)₂, -C(O)R₁₄, -C(O)N(R₁₄)₂, -CN, -CF₃, -NR₁₄C(O)R₁₄, -S(O)₂N(R₁₄)₂, -NR₁₄S(O)₂R₁₄, or -NO₂;

Each R_{14} is independently H, alkyl, cycloalkyl, heterocycloalkyl, haloalkyl, halocycloalkyl, or haloheterocycloalkyl;

10 wherein W is (A):



wherein R_{A-1a} is H, alkyl, alkenyl, alkynyl, cycloalkyl, heterocycloalkyl, haloalkyl, haloalkenyl, haloalkynyl, halocycloalkyl, haloheterocycloalkyl, substituted alkyl, substituted alkenyl, substituted alkynyl, substituted cycloalkyl, substituted heterocycloalkyl, aryl, -R₅, R₆, -OR_{A-3}, -SR_{A-3}, F, Cl, Br, I, -N(R_{A-3})₂, -C(O)R_{A-3}, -CN, -C(O)N(R_{A-3})₂, -NR_{A-3}C(O)R_{A-3}, -S(O)R_{A-3}, -OS(O)₂R_{A-3}, -NR_{A-3}S(O)₂R_{A-3}, -NO₂, and -N(H)C(O)N(H)R_{A-3};

R_{A-1b} is -O-R_{A-3}, -S-R_{A-3}, -S(O)-R_{A-3}, -C(O)-R_{A-7}, and alkyl substituted on the ω carbon with R_{A-7};

20 Each R_{A-3} is independently selected from H, alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, halo-heterocycloalkyl, substituted heterocycloalkyl, R₅, R₆, phenyl, or substituted phenyl;

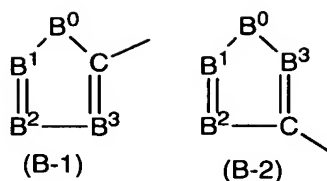
R_{A-4} is selected from cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, or substituted heterocycloalkyl;

25 Each R_{A-5} is independently selected from cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, R₅, R₆, phenyl, or substituted phenyl;

Each R_{A-6} is independently selected from alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, halo-heterocycloalkyl, substituted heterocycloalkyl, R₅, R₆, phenyl, or substituted phenyl;

R_{A-7} is selected from aryl, R₅, or R₆;

wherein W is (B):



wherein B^0 is -O-, -S-, or -N(R_{B-0})-;

5 B^1 and B^2 are independently selected from =N-, or =C(R_{B-1})-;

B^3 is =N-, or =CH-, provided that when both B^1 and B^2 are =C(R_{B-1})- and B^3 is =CH-, only one =C(R_{B-1})- can be =CH-, and further provided that when B^0 is -O-, B^2 is =C(R_{B-1})- and B^3 is =C(H)-, B^1 cannot be =N-,

R_{B-0} is H, alkyl, cycloalkyl, heterocycloalkyl, haloalkyl, halocycloalkyl,
 10 haloheterocycloalkyl, substituted alkyl, substituted cycloalkyl, substituted heterocycloalkyl, or aryl, and provided that when B is (B-2) and B^3 is =N- and B^0 is N(R_{B-0}), R_{B-0} cannot be phenyl or substituted phenyl;

R_{B-1} is H, alkyl, alkenyl, alkynyl, cycloalkyl, heterocycloalkyl, haloalkyl, haloalkenyl, haloalkynyl, halocycloalkyl, haloheterocycloalkyl, substituted alkyl,
 15 substituted alkenyl, substituted alkynyl, substituted cycloalkyl, substituted heterocycloalkyl, aryl, -OR_{B-2}, -SR_{B-2}, F, Cl, Br, I, -N(R_{B-2})₂, -C(O) R_{B-2} , -C(O)N(R_{B-2})₂, -CN, -NR_{B-2}C(O) R_{B-4} , -S(O)₂N(R_{B-2})₂, -OS(O)₂ R_{B-4} , -S(O)₂ R_{B-2} , -NR_{B-2}S(O)₂ R_{B-2} , -N(H)C(O)N(H) R_{B-2} , -NO₂, R₅, and R₆;

Each R_{B-2} is independently H, alkyl, haloalkyl, substituted alkyl, cycloalkyl,
 20 halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, R₅, R₆, phenyl, or substituted phenyl;

Each R_{B-3} is independently H, alkyl, haloalkyl, limited substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl;

25 R_{B-4} is independently H, alkyl, cycloalkyl, heterocycloalkyl, haloalkyl, halocycloalkyl, or haloheterocycloalkyl;

wherein W is (C):

(C) is a six-membered heterocyclic ring system having 1-2 nitrogen atoms or a
 30 10-membered bicyclic-six-six-fused-ring system having up to two nitrogen atoms

within either or both rings, provided that no nitrogen is at a bridge of the bicyclic-six-six-fused-ring system, and further having 1-2 substituents independently selected from R_{C-1} ;

Each R_{C-1} is independently H, F, Cl, Br, I, alkyl, haloalkyl, substituted alkyl,
 5 alkenyl, haloalkenyl, substituted alkenyl, alkynyl, haloalkynyl, substituted alkynyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, lactam heterocycloalkyl, phenyl, substituted phenyl, $-NO_2$, $-CN$, $-OR_{C-2}$, $-SR_{C-2}$, $-SOR_{C-2}$, $-SO_2R_{C-2}$, $-NR_{C-2}C(O)R_{C-2}$, $-N(R_{C-2})_2$, $-C(O)R_{C-2}$, $-C(O)_2R_{C-2}$, $-C(O)N(R_{C-2})_2$, $-SCN$, $-S(O)N(R_{C-2})_2$, $-S(O)_2N(R_{C-2})_2$,
 10 $-NR_{C-2}S(O)_2R_{C-2}$, R_5 , or R_6 ;

Each R_{C-2} is independently H, alkyl, cycloalkyl, heterocycloalkyl, alkyl substituted with 1 substituent selected from R_{C-5} , cycloalkyl substituted with 1 substituent selected from R_{C-5} , heterocycloalkyl substituted with 1 substituent selected from R_{C-5} , haloalkyl, halocycloalkyl, haloheterocycloalkyl, phenyl, or substituted
 15 phenyl;

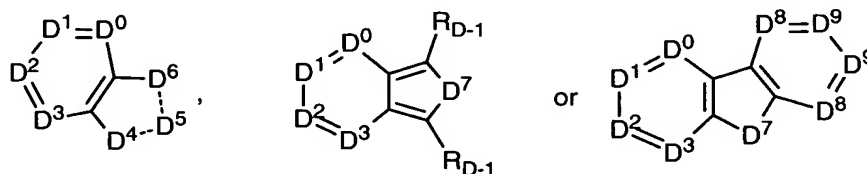
Each R_{C-3} is independently H, alkyl, or substituted alkyl;

R_{C-4} is H, alkyl, an amino protecting group, or an alkyl group having 1-3 substituents selected from F, Cl, Br, I, $-OH$, $-CN$, $-NH_2$, $-NH(alkyl)$, or $-N(alkyl)_2$;

R_{C-5} is $-CN$, $-CF_3$, $-NO_2$, $-OR_{C-6}$, $-SR_{C-6}$, $-N(R_{C-6})_2$, $-C(O)R_{C-6}$, $-SOR_{C-6}$,
 20 $-SO_2R_{C-6}$, $-C(O)N(R_{C-6})_2$, $-NR_{C-6}C(O)R_{C-6}$, $-S(O)_2N(R_{C-6})_2$, or $-NR_{C-6}S(O)_2R_{C-6}$;

Each R_{C-6} is independently H, alkyl, cycloalkyl, heterocycloalkyl, haloalkyl, halocycloalkyl, or haloheterocycloalkyl;

wherein W is (D):



25

provided that the bond between the $-C(=X)-$ group and the W group may be attached at any available carbon atom within the D group as provided in R_{D-1} , R_{D-3} , and R_{D-4} ;

D^0 , D^1 , D^2 , and D^3 are N or $C(R_{D-1})$ provided that up to one of D^0 , D^1 , D^2 , or D^3 is N and the others are $C(R_{D-1})$, further provided that when the core molecule is

attached at D^2 and D^0 or D^1 is N, D^3 is C(H), and further provided that there is only one attachment to the core molecule;

D^4 --- D^5 --- D^6 is selected from $N(R_{D-2})-C(R_{D-3})=C(R_{D-3})$, $N=C(R_{D-3})-C(R_{D-4})_2$, $C(R_{D-3})=C(R_{D-3})-N(R_{D-2})$, $C(R_{D-3})_2-N(R_{D-2})-C(R_{D-3})_2$, $C(R_{D-4})_2-C(R_{D-3})=N$,
 5 $N(R_{D-2})-C(R_{D-3})_2-C(R_{D-3})_2$, $C(R_{D-3})_2-C(R_{D-3})_2-N(R_{D-2})$, $O-C(R_{D-3})=C(R_{D-3})$,
 $O-C(R_{D-3})_2-C(R_{D-3})_2$, $C(R_{D-3})_2-O-C(R_{D-3})_2$, $C(R_{D-3})=C(R_{D-3})-O$, $C(R_{D-3})_2-C(R_{D-3})_2-O$,
 $S-C(R_{D-3})=C(R_{D-3})$, $S-C(R_{D-3})_2-C(R_{D-3})_2$, $C(R_{D-3})_2-S-C(R_{D-3})_2$, $C(R_{D-3})=C(R_{D-3})-S$,
 or $C(R_{D-3})_2-C(R_{D-3})_2-S$;

provided that when C(X) is attached to W at D^2 and D^6 is O, $N(R_{D-2})$, or S,
 10 D^4 --- D^5 is not $CH=CH$;

and further provided that when C(X) is attached to W at D^2 and D^4 is O,
 $N(R_{D-2})$, or S, D^5 --- D^6 is not $CH=CH$;

Each R_{D-1} is independently H, F, Br, I, Cl, -CN, -CF₃, -OR_{D-5}, -SR_{D-5},
 -N(R_{D-5})₂, or a bond to -C(X)- provided that only one of R_{D-1} , R_{D-3} , and R_{D-4} is said
 15 bond;

Each R_{D-2} is independently H, alkyl, haloalkyl, substituted alkyl, cycloalkyl,
 halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl,
 substituted heterocycloalkyl, R_5 , or R_6 ;

Each R_{D-3} is independently H, F, Br, Cl, I, alkyl, substituted alkyl, haloalkyl,
 20 alkenyl, substituted alkenyl, haloalkenyl, alkynyl, substituted alkynyl, haloalkynyl,
 heterocycloalkyl, substituted heterocycloalkyl, lactam heterocycloalkyl, -CN, -NO₂,
 -OR_{D-10}, -C(O)N(R_{D-11})₂, -NR_{D-10}COR_{D-12}, -N(R_{D-10})₂, -SR_{D-10}, -S(O)₂R_{D-10},
 -C(O)R_{D-12}, -CO₂R_{D-10}, aryl, R_5 , R_6 , or a bond to -C(X)- provided that only one of
 R_{D-1} , R_{D-3} , and R_{D-4} is said bond;

Each R_{D-4} is independently H, F, Br, Cl, I, alkyl, substituted alkyl, haloalkyl,
 25 alkenyl, substituted alkenyl, haloalkenyl, alkynyl, substituted alkynyl, haloalkynyl,
 heterocycloalkyl, substituted heterocycloalkyl, lactam heterocycloalkyl, -CN, -NO₂,
 -OR_{D-10}, -C(O)N(R_{D-11})₂, -NR_{D-10}COR_{D-12}, -N(R_{D-11})₂, -SR_{D-10}, -CO₂R_{D-10}, aryl, R_5 ,
 R_6 , or a bond to -C(X)- provided that only one of R_{D-1} , R_{D-3} , and R_{D-4} is said bond;

Each R_{D-5} is independently H, C₁₋₃ alkyl, or C₂₋₄ alkenyl;

D^7 is O, S, or $N(R_{D-2})$;

D^8 and D^9 are C(R_{D-1}), provided that when the molecule is attached to the
 phenyl moiety at D^9 , D^8 is CH;

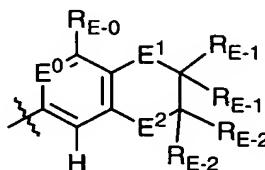
Each R_{D-10} is H, alkyl, cycloalkyl, haloalkyl, substituted phenyl, or substituted naphthyl;

Each R_{D-11} is independently H, alkyl, cycloalkyl, heterocycloalkyl, alkyl substituted with 1 substituent selected from R₁₃, cycloalkyl substituted with 1 substituent selected from R₁₃, heterocycloalkyl substituted with 1 substituent selected from R₁₃, haloalkyl, halocycloalkyl, haloheterocycloalkyl, phenyl, or substituted phenyl;

R_{D-12} is H, alkyl, substituted alkyl, cycloalkyl, haloalkyl, heterocycloalkyl, substituted heterocycloalkyl, substituted phenyl, or substituted naphthyl;

10

wherein W is (E):



E^0 is CH or N;

15 R_{E-0} is H, F, Cl, Br, I, alkyl, alkenyl, alkynyl, cycloalkyl, heterocycloalkyl, haloalkyl, haloalkenyl, haloalkynyl, halocycloalkyl, haloheterocycloalkyl, substituted alkyl, substituted alkenyl, substituted alkynyl, substituted cycloalkyl, substituted heterocycloalkyl, aryl, R_5 , R_6 , $-OR_{E-3}$, $-SR_{E-3}$, $-N(R_{E-3})_2$, $-C(O)R_{E-3}$, $-CN$, $-C(O)N(R_{E-3})_2$, $-NR_{E-3}C(O)R_{E-3}$, $-S(O)R_{E-3}$, $-S(O)R_{E-5}$, $-OS(O)_2R_{E-3}$, $-NR_{E-3}S(O)_2R_{E-3}$, $-NO_2$, or $-N(H)C(O)N(H)R_{E-3}$;

20 E¹ is O, CR_{E-1-1}, or C(R_{E-1-1})₂, provided that when E¹ is CR_{E-1-1}, one R_{E-1} is a bond to CR_{E-1-1}, and further provided that at least one of E¹ or E² is O;

Each R_{E-1-1} is independently H, F, Br, Cl, CN, alkyl, haloalkyl, substituted alkyl, alkynyl, cycloalkyl, -OR_E, or -N(R_E)₂, provided that at least one R_{E-1-1} is H when E¹ is C(R_{E-1-1})₂;

25 Each R_{E-1} is independently H, alkyl, substituted alkyl, haloalkyl, cycloalkyl, heterocycloalkyl, or a bond to E¹ provided that E¹ is CR_{E-1-1};

E^2 is O, $CR_{E-2,2}$, or $C(R_{E-2,2})_2$, provided that when E^2 is $CR_{E-2,2}$, one R_{E-2} is a bond to $CR_{E-2,2}$, and further provided that at least one of E^1 or E^2 is O;

Each R_{E-2-2} is independently H, F, Br, Cl, CN, alkyl, haloalkyl, substituted alkyl, alkynyl, cycloalkyl, $-OR_E$, or $-N(R_E)_2$, provided that at least one R_{E-2-2} is H when E^2 is $C(R_{E-2-2})_2$;

Each R_{E-2} is independently H, alkyl, substituted alkyl, haloalkyl, cycloalkyl, heterocycloalkyl, or a bond to E^2 provided that E^2 is CR_{E-2-2} ;

Each R_E is independently H, alkyl, cycloalkyl, heterocycloalkyl, haloalkyl, halocycloalkyl, or haloheterocycloalkyl;

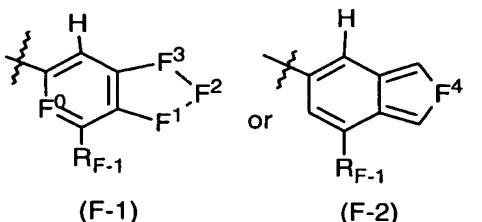
Each R_{E-3} is independently H, alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, R_5 , R_6 , phenyl, or phenyl having 1 substituent selected from R_9 and further having 0-3 substituents independently selected from F, Cl, Br, or I or substituted phenyl;

R_{E-4} is H, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, R_5 , R_6 , phenyl, or substituted phenyl;

Each R_{E-5} is independently H, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, R_5 , or R_6 ;

Each R_{E-6} is independently alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, R_5 , R_6 , phenyl, or phenyl having 1 substituent selected from R_9 and further having 0-3 substituents independently selected from F, Cl, Br, or I;

wherein W is (F):



F^0 is C(H) wherein $F^1 \cdots F^2 \cdots F^3$ is selected from $O-C(R_{F-2})=N$, $O-C(R_{F-3})(R_{F-2})-N(R_{F-4})$, $O-C(R_{F-3})(R_{F-2})-S$, $O-N=C(R_{F-3})$, $O-C(R_{F-2})(R_{F-3})-O$, $S-C(R_{F-2})=N$, $S-C(R_{F-3})(R_{F-2})-N(R_{F-4})$, $S-N=C(R_{F-3})$, $N=C(R_{F-2})-O$,

$N=C(R_{F-2})-S$, $N=C(R_{F-2})-N(R_{F-4})$, $N(R_{F-4})-N=C(R_{F-3})$, $N(R_{F-4})-C(R_{F-3})(R_{F-2})-O$,
 $N(R_{F-4})-C(R_{F-3})(R_{F-2})-S$, $N(R_{F-4})-C(R_{F-3})(R_{F-2})-N(R_{F-4})$, $C(R_{F-3})_2-O-N(R_{F-4})$,
 $C(R_{F-3})_2-N(R_{F-4})-O$, $C(R_{F-3})_2-N(R_{F-4})-S$, $C(R_{F-3})=N-O$, $C(R_{F-3})=N-S$,
 $C(R_{F-3})=N-N(R_{F-4})$, or $C(R_{F-3})_2-C(R_{F-2})(R_{F-3})-C(R_{F-3})_2$;

- 5 F^0 is N wherein $F^1---F^2---F^3$ is selected from $O-C(R_{F-2})=N$,
 $O-C(R_{F-3})(R_{F-2})-N(R_{F-4})$, $O-C(R_{F-3})(R_{F-2})-S$, $O-N=C(R_{F-3})$, $O-C(R_{F-2})(R_{F-3})-O$,
 $S-C(R_{F-2})=N$, $S-C(R_{F-3})(R_{F-2})-N(R_{F-4})$, $S-N=C(R_{F-3})$, $N=C(R_{F-2})-O$, $N=C(R_{F-2})-S$,
 $N=C(R_{F-2})-N(R_{F-4})$, $N(R_{F-4})-N=C(R_{F-3})$, $N(R_{F-4})-C(R_{F-3})(R_{F-2})-O$,
 $N(R_{F-4})-C(R_{F-3})(R_{F-2})-S$, $N(R_{F-4})-C(R_{F-3})(R_{F-2})-N(R_{F-4})$, $C(R_{F-3})_2-O-N(R_{F-4})$,
10 $C(R_{F-3})_2-N(R_{F-4})-O$, $C(R_{F-3})_2-N(R_{F-4})-S$, $C(R_{F-3})=N-O$, $C(R_{F-3})=N-S$,
 $C(R_{F-3})=N-N(R_{F-4})$, $C(R_{F-3})=C(R_{F-2})-C(R_{F-3})_2$, or $C(R_{F-3})_2-C(R_{F-2})(R_{F-3})-C(R_{F-3})_2$;

F^4 is $N(R_{F-7})$, O, or S;

R_{F-1} is H, F, Cl, Br, I, -CN, -CF₃, -OR_{F-8}, -SR_{F-8}, or -N(R_{F-8})₂;

- R_{F-2} is H, F, alkyl, haloalkyl, substituted alkyl, lactam heterocycloalkyl,
15 phenoxy, substituted phenoxy, R₅, R₆, -N(R_{F-4})-aryl, -N(R_{F-4})-substituted phenyl,
-N(R_{F-4})-substituted naphthyl, -O-substituted phenyl, -O-substituted naphthyl,
-S-substituted phenyl, -S-substituted naphthyl, or alkyl substituted on the ω carbon
with R_{F-9};

- R_{F-3} is H, F, Br, Cl, I, alkyl, substituted alkyl, haloalkyl, alkenyl, substituted
20 alkenyl, haloalkenyl, alkynyl, substituted alkynyl, haloalkynyl, heterocycloalkyl,
substituted heterocycloalkyl, lactam heterocycloalkyl, -CN, -NO₂, -OR_{F-8},
-C(O)N(R_{F-8})₂, -NHR_{F-8}, -NR_{F-8}COR_{F-8}, -N(R_{F-8})₂, -SR_{F-8}, -C(O)R_{F-8}, -CO₂R_{F-8}, aryl,
R₅, or R₆;

R_{F-4} is H, or alkyl;

- 25 Each R_{F-5} is independently F, Br, Cl, I, alkyl, substituted alkyl, haloalkyl,
alkenyl, substituted alkenyl, haloalkenyl, alkynyl, substituted alkynyl, haloalkynyl,
-CN, -CF₃, -OR_{F-8}, -C(O)NH₂, -NHR_{F-8}, -SR_{F-8}, -CO₂R_{F-8}, aryl, phenoxy, substituted
phenoxy, heteroaryl, -N(R_{F-4})-aryl, or -O-substituted aryl;

- One of R_{F-6} is H, alkyl, substituted alkyl, haloalkyl, alkenyl, substituted
30 alkenyl, haloalkenyl, alkynyl, substituted alkynyl, haloalkynyl, -CN, F, Br, Cl, I,
-OR_{F-8}, -C(O)NH₂, -NHR_{F-8}, -SR_{F-8}, -CO₂R_{F-8}, aryl, R₅, or R₆, and each of the other
two R_{F-6} is independently selected from alkyl, substituted alkyl, haloalkyl, alkenyl,

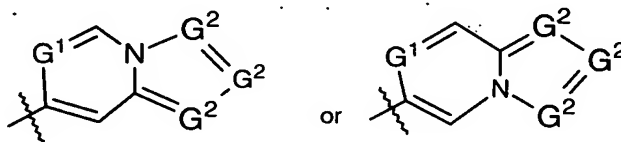
substituted alkenyl, haloalkenyl, alkynyl, substituted alkynyl, haloalkynyl, -CN, F, Br, Cl, I, -OR_{F-8}, -C(O)NH₂, -NHR_{F-8}, -SR_{F-8}, -CO₂R_{F-8}, aryl, R₅, or R₆;

R_{F-7} is H, alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, phenyl, or phenyl having 1 substituent selected from R₉ and further having 0-3 substituents independently selected from F, Cl, Br, or I;

R_{F-8} is H, alkyl, substituted alkyl, cycloalkyl, haloalkyl, heterocycloalkyl, substituted heterocycloalkyl, substituted phenyl, or substituted naphthyl;

R_{F-9} is aryl, R₅, or R₆;

wherein W is (G):



G¹ is N or CH;

Each G² is N or C(R_{G-1}), provided that no more than one G² is N;

Each R_{G-1} is independently H, alkyl, substituted alkyl, haloalkyl, alkenyl, substituted alkenyl, haloalkenyl, alkynyl, substituted alkynyl, haloalkynyl, -CN, -NO₂, F, Br, Cl, I, -C(O)N(R_{G-3})₂, -N(R_{G-3})₂, -SR_{G-6}, -S(O)₂R_{G-6}, -OR_{G-6}, -C(O)R_{G-6}, -CO₂R_{G-6}, aryl, R₅, R₆, or two R_{G-1} on adjacent carbon atoms may combine for W to be a 6-5-6 fused-tricyclic-heteroaromatic-ring system optionally substituted on the newly formed ring where valency allows with 1-2 substituents independently selected from F, Cl, Br, I, and R_{G-2};

R_{G-2} is alkyl, alkenyl, alkynyl, cycloalkyl, heterocycloalkyl, haloalkyl, haloalkenyl, haloalkynyl, halocycloalkyl, haloheterocycloalkyl, -OR_{G-8}, -SR_{G-8}, -S(O)₂R_{G-8}, -S(O)R_{G-8}, -OS(O)₂R_{G-8}, -N(R_{G-8})₂, -C(O)R_{G-8}, -C(S)R_{G-8}, -C(O)OR_{G-8}, -CN, -C(O)N(R_{G-8})₂, -NR_{G-8}C(O)R_{G-8}, -S(O)₂N(R_{G-8})₂, -NR_{G-8}S(O)₂R_{G-8}, -NO₂, -N(R_{G-8})C(O)N(R_{G-8})₂, substituted alkyl, substituted alkenyl, substituted alkynyl, substituted cycloalkyl, substituted heterocycloalkyl, lactam heterocycloalkyl, phenyl, phenyl having 0-4 substituents independently selected from F, Cl, Br, I and R_{G-7}, naphthyl, or naphthyl having 0-4 substituents independently selected from F, Cl, Br, I, or R_{G-7};

provided that when G² adjacent to the bridge N is C(R_{G-1}) and the other G² are CH, that R_{G-1} is other than H, F, Cl, I, alkyl, substituted alkyl or alkynyl;

Each R_{G-3} is independently H, alkyl, cycloalkyl, heterocycloalkyl, alkyl substituted with 1 substituent selected from R_{G-4} , cycloalkyl substituted with 1 substituent selected from R_{G-4} , heterocycloalkyl substituted with 1 substituent selected from R_{G-4} , haloalkyl, halocycloalkyl, haloheterocycloalkyl, phenyl, or substituted phenyl;

R_{G-4} is $-OR_{G-5}$, $-SR_{G-5}$, $-N(R_{G-5})_2$, $-C(O)R_{G-5}$, $-SOR_{G-5}$, $-SO_2R_{G-5}$, $-C(O)N(R_{G-5})_2$, $-CN$, $-CF_3$, $-NR_{G-5}C(O)R_{G-5}$, $-S(O)_2N(R_{G-5})_2$, $-NR_{G-5}S(O)_2R_{G-5}$, or $-NO_2$;

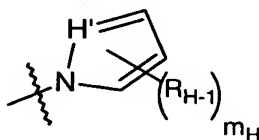
Each R_{G-5} is independently H, alkyl, cycloalkyl, heterocycloalkyl, haloalkyl, halocycloalkyl, or haloheterocycloalkyl;

R_{G-6} is H, alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, phenyl, or phenyl having 0-4 substituents independently selected from F, Cl, Br, I, and R_{G-7} ;

R_{G-7} is alkyl, substituted alkyl, haloalkyl, $-OR_{G-5}$, $-CN$, $-NO_2$, $-N(R_{G-3})_2$;

Each R_{G-8} is independently H, alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, phenyl, or phenyl substituted with 0-4 independently selected from F, Cl, Br, I, or R_{G-7} ;

wherein W is (H)



H' is N or CH;

Each R_{H-1} is independently F, Cl, Br, I, $-CN$, $-NO_2$, alkyl, haloalkyl, substituted alkyl, alkenyl, haloalkenyl, substituted alkenyl, alkynyl, haloalkynyl, substituted alkynyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, lactam heterocycloalkyl, aryl, R_5 , R_6 , $-OR_8$, $-SR_8$, $-SOR_8$, $-SO_2R_8$, $-SCN$, $-S(O)N(R_8)_2$, $-S(O)_2N(R_8)_2$, $-C(O)R_8$, $-C(O)_2R_8$, $-C(O)N(R_8)_2$, $C(R_8)=N-OR_8$, $-NC(O)R_5$, $-NC(O)R_{H-3}$, $-NC(O)R_6$, $-N(R_8)_2$, $-NR_8C(O)R_8$, $-NR_8S(O)_2R_8$, or two R_{H-1} on adjacent carbon atoms may fuse to form a 6-membered ring to give a 5-6 fused, bicyclic moiety

where the 6-membered ring is optionally substituted with 1-3 substituents selected from R_{H-2} ;

m_H is 0, 1, or 2;

R_{H-2} is alkyl, alkenyl, alkynyl, cycloalkyl, heterocycloalkyl, haloalkyl, haloalkenyl, haloalkynyl, halocycloalkyl, haloheterocycloalkyl, $-OR_{H-3}$, $-SR_{H-3}$, $-S(O)_2R_{H-3}$, $-S(O)R_{H-3}$, $-OS(O)_2R_{H-3}$, $-N(R_{H-3})_2$, $-C(O)R_{H-3}$, $-C(S)R_{H-3}$, $-C(O)OR_{H-3}$, $-CN$, $-C(O)N(R_{H-3})_2$, $-NR_{H-3}C(O)R_{H-3}$, $-S(O)_2N(R_{H-3})_2$, $-NR_{H-3}S(O)_2R_{H-3}$, $-NO_2$, $-N(R_{H-3})C(O)N(R_{H-3})_2$, substituted alkyl, substituted alkenyl, substituted alkynyl, substituted cycloalkyl, substituted heterocycloalkyl, lactam heterocycloalkyl, phenyl, phenyl having 0-4 substituents independently selected from F, Cl, Br, I and R_7 , naphthyl, naphthyl having 0-4 substituents independently selected from F, Cl, Br, I, or R_7 , or two R_{H-2} on adjacent carbon atoms may combine to form a three-ring-fused-5-6-6 system optionally substituted with up to 3 substituents independently selected from Br, Cl, F, I, $-CN$, $-NO_2$, $-CF_3$, $-N(R_{H-3})_2$, $-N(R_{H-3})C(O)R_{H-3}$, alkyl, alkenyl, and alkynyl;

Each R_{H-3} is independently H, alkyl, haloalkyl, substituted alkyl, cycloalkyl, halocycloalkyl, substituted cycloalkyl, heterocycloalkyl, haloheterocycloalkyl, substituted heterocycloalkyl, phenyl, or phenyl substituted with 0-4 independently selected from F, Cl, Br, I, or R_7 ;

or pharmaceutically acceptable salt, racemic mixture, or pure enantiomer thereof.

35. The method of claim 34, wherein the disease or condition is wound healing, healing bone fracture, ischemic heart disease, or stable angina pectoris.

36. The method of claim 34, wherein the wound is from surgery or burn.

37. The method of claim 34, wherein X is O and R_1 is H.

38. The method of claim 37, wherein W is (C), (D), (E), (F), and (G).

39. The method of claim 38, wherein Azabicyclo is I, II, V and VII.

40. The method of claim 39, wherein W is 4-chlorophen-1-yl;
 dibenzo[b,d]thiophene-2-yl; isoquinoline-3-yl; furo[2,3-c]pyridine-5-yl; furo[3,2-
 c]pyridine-6; 1,3-benzodioxole-5-yl; 2,3-dihydro-1,4-benzodioxine-6-yl; 2,3-dihydro-
 1,4-benzodioxine-7-yl; 1,3-benzoxazole-5-yl; thieno[2,3-c]pyridine-5-yl; thieno[3,2-
 5 c]pyridine-6-yl; [1]benzothieno[3,2-c]pyridine-3-yl; 1,3-benzothiazole-6-yl;
 thieno[3,4-c]pyridine-6-yl; 2,3-dihydro-1-benzofuran-5-yl; 1-benzofuran-5-yl;
 furo[3,2-c]pyridine-6-yl; [1]benzothieno[2,3-c]pyridine-3-yl; dibenzo[b,d]furan-2-yl;
 1-benzofuran-6-yl; 2-naphthyl; 1H-indole-6-yl; pyrrolo[1,2-c]pyrimidine-3-yl; 1-
 benzothiophene-5-yl; 1-benzothiophene-5-yl; 1-benzothiophene-6-yl; pyrrolo[1,2-
 10 a]pyrazine-3-yl; 1H-indole-6-yl; pyrazino[1,2-a]indole-3-yl; 1,3-benzothiazole-6-yl;
 [1]benzofuro[2,3-c]pyridine-3-yl; [1]benzofuro[2,3-c]pyridine-3-yl; 2H-chromene-6-
 yl; indolizine-6-yl; and [1,3]dioxolo[4,5-c]pyridine-6-yl; any of which is optionally
 substituted as allowed in claim 39.

41. The method of claim 40, wherein the agonist is
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-4-chlorobenzamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]dibenzo[b,d]thiophene-2-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]isoquinoline-3-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
 20 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1,3-benzodioxole-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-methylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2,3-dihydro-1,4-benzodioxine-6-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-methylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]isoquinoline-3-carboxamide;
 25 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-methylfuro[2,3-c]pyridine-5-
 carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1,3-benzoxazole-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-methyl-1,3-benzoxazole-5-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]thieno[2,3-c]pyridine-5-carboxamide;
 30 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]thieno[3,2-c]pyridine-6-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]furo[2,3-c]pyridine-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-ethylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-isopropylfuro[2,3-c]pyridine-5-carboxamide;

- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]thieno[2,3-c]pyridine-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]thieno[3,2-c]pyridine-6-carboxamide;
 5-[(2R)-7-azoniabicyclo[2.2.1]hept-2-ylamino]carbonyl}-3-ethylfuro[2,3-c]pyridin-6-ium dichloride;
 5 5-[(2R)-7-azoniabicyclo[2.2.1]hept-2-ylamino]carbonyl}-3-isopropylfuro[2,3-c]pyridin-6-ium dichloride;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]furo[2,3-c]pyridine-5-carboxamide;
 N-1-azabicyclo[2.2.2]oct-3-yl[1]benzothieno[3,2-c]pyridine-3-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1,3-benzothiazole-6-carboxamide;
 10 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-chlorofuro[2,3-c]pyridine-5-carboxamide;
 N-1-azabicyclo[2.2.2]oct-3-ylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]thieno[3,4-c]pyridine-6-carboxamide;
 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]-3-methylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-3-methylfuro[2,3-c]pyridine-5-
 15 carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2,3-dihydro-1-benzofuran-5-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]thieno[2,3-c]pyridine-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]furo[3,2-c]pyridine-6-carboxamide;
 20 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]thieno[3,2-c]pyridine-6-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]3-ethylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]3-isopropylfuro[2,3-c]pyridine-5-
 carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-chlorofuro[2,3-c]pyridine-5-
 25 carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]3-chlorofuro[2,3-c]pyridine-5-carboxamide;
 N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
 N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]furo[3,2-c]pyridine-6-carboxamide;
 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]-4-chlorobenzamide;
 30 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]thieno[3,4-c]pyridine-6-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]dibenzo[b,d]thiophene-2-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-1-benzofuran-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl][1]benzothieno[2,3-c]pyridine-3-carboxamide;

- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl][1]benzothieno[2,3-c]pyridine-3-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-1-benzofuran-5-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]dibenzo[b,d]furan-2-carboxamide;
- 5 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
- N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]furo[3,2-c]pyridine-6-carboxamide;
- N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]-1-benzofuran-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-bromofuro[2,3-c]pyridine-5-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-bromofuro[2,3-c]pyridine-5-
- 10 carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-6-carboxamide;
- N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-2-naphthamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;
- N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]thieno[2,3-c]pyridine-5-carboxamide;
- 15 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]thieno[3,2-c]pyridine-6-carboxamide;
- N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-1H-indole-6-carboxamide;
- N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]thieno[2,3-c]pyridine-5-carboxamide;
- 3-methyl-N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-
- 20 carboxamide;
- N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-5-carboxamide;
- N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]thieno[3,2-c]pyridine-6-carboxamide;
- N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]pyrrolo[1,2-c]pyrimidine-3-
- 25 carboxamide;
- N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-1,3-benzothiazole-6-carboxamide;
- N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzothiophene-5-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;
- 30 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;
- N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-3-bromofuro[2,3-c]pyridine-5-carboxamide;
- N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-1,3-benzodioxole-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-bromo-1-benzofuran-5-carboxamide;

- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-bromo-1-benzofuran-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-bromothieno[2,3-c]pyridine-5-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-bromothieno[2,3-c]pyridine-5-carboxamide;
- 5 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-1-benzothiophene-5-carboxamide;
 N-[(3S)-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-methyl-1-benzofuran-5-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-methyl-1-benzofuran-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-methyl-1-benzofuran-6-carboxamide;
- 10 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]-1-benzofuran-6-carboxamide;
 N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-6-carboxamide;
 N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-1-benzothiophene-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzothiophene-6-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]pyrrolo[1,2-a]pyrazine-3-carboxamide;
- 15 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-1-benzothiophene-6-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-methyl-1H-indole-6-carboxamide;
 N-[(3S)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-isopropyl-1-benzofuran-5-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-isopropyl-1-benzofuran-5-
- 20 carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-ethynylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1H-indazole-6-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-methyl-1-benzofuran-5-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-2-methyl-1-benzofuran-5-carboxamide;
- 25 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]pyrazino[1,2-a]indole-3-carboxamide;
 3-bromo-N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]pyrrolo[1,2-a]pyrazine-3-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-7-methoxy-2-naphthamide;
- 30 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]pyrrolo[1,2-a]pyrazine-3-carboxamide;
 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]-1,3-benzothiazole-6-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-3-bromo-1-benzofuran-6-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl][1]benzofuro[2,3-c]pyridine-3-carboxamide;

- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl][1]benzofuro[2,3-c]pyridine-3-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-ethynyl-1-benzofuran-5-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-ethynyl-1-benzofuran-5-carboxamide;
- 5 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2H-chromene-6-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-prop-1-ynyl-1-benzofuran-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-phenyl-1,3-benzodioxole-5-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-6-bromopyrrolo[1,2-a]pyrazine-3-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-prop-1-ynylfuro[2,3-c]pyridine-5-
- 10 carboxamide;
- N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]pyrrolo[1,2-a]pyrazine-3-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]indolizine-6-carboxamide;
- 2-amino-N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1,3-benzothiazole-6-carboxamide;
- 15 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-6-ethynylpyrrolo[1,2-a]pyrazine-3-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-8-methoxy-2-naphthamide;
- N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]indolizine-6-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl][1,3]dioxolo[4,5-c]pyridine-6-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl][1,3]dioxolo[4,5-c]pyridine-6-
- 20 carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-cyano-1-benzofuran-5-carboxamide;
- N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl][1,3]dioxolo[4,5-c]pyridine-6-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-ethyl-2,3-dihydro-1,4-benzodioxine-6-carboxamide;
- 25 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-ethyl-2,3-dihydro-1,4-benzodioxine-7-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-7-hydroxy-2-naphthamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-ethynylfuro[2,3-c]pyridine-5-carboxamide;
- 30 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-6-chloroisoquinoline-3-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-6-methylisoquinoline-3-carboxamide;
- N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-6-methylisoquinoline-3-carboxamide;
- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-cyanofuro[2,3-c]pyridine-5-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-naphthamide; and

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]dibenzo[b,d]furan-2-carboxamide;

provided that the agonist is the free base or a pharmaceutically acceptable salt thereof.

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42. The method of claim 41, wherein the disease or condition is wound healing, healing bone fracture, ischemic heart disease, or stable angina pectoris.

43. The method of claim 41, wherein the wound is from surgery or burn.

10 44. The method of claim 41, wherein the compound is

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]dibenzo[b,d]thiophene-2-carboxamide;

N-1-azabicyclo[2.2.2]oct-3-yl[1]benzothieno[3,2-c]pyridine-3-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl][1]benzothieno[2,3-c]pyridine-3-carboxamide;

and

15 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl][1]benzothieno[2,3-c]pyridine-3-carboxamide;

provided that the agonist is the free base or a pharmaceutically acceptable salt thereof.

45. The method of claim 41, wherein the compound is

20 N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-2-naphthamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-7-methoxy-2-naphthamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-8-methoxy-2-naphthamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-7-hydroxy-2-naphthamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-naphthamide;

25 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]isoquinoline-3-carboxamide;

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]isoquinoline-3-carboxamide;

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-6-chloroisoquinoline-3-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-6-methylisoquinoline-3-carboxamide; and

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-6-methylisoquinoline-3-carboxamide;

30 provided that the agonist is the free base or a pharmaceutically acceptable salt thereof.

46. The method of claim 41, wherein the compound is

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;

- N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]furo[3,2-c]pyridine-6-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-methylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-methylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-methylfuro[2,3-c]pyridine-5-
 5 carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]furo[2,3-c]pyridine-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-ethylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-isopropylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]furo[2,3-c]pyridine-5-carboxamide;
 10 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-chlorofuro[2,3-c]pyridine-5-carboxamide;
 N-1-azabicyclo[2.2.2]oct-3-ylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]-3-methylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-3-methylfuro[2,3-c]pyridine-5-
 carboxamide;
 15 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]3-ethylfuro[2,3-c]pyridine-5-carboxamide;
 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]3-isopropylfuro[2,3-c]pyridine-5-
 carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-chlorofuro[2,3-c]pyridine-5-
 carboxamide;
 20 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]3-chlorofuro[2,3-c]pyridine-5-carboxamide;
 N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
 N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]furo[3,2-c]pyridine-6-carboxamide;
 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]furo[3,2-c]pyridine-6-carboxamide;
 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
 25 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-bromofuro[2,3-c]pyridine-5-carboxamide;
 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-bromofuro[2,3-c]pyridine-5-
 carboxamide;
 3-methyl-N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-
 carboxamide;
 30 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-3-bromofuro[2,3-c]pyridine-5-carboxamide;
 N-[(3S)-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-ethynylfuro[2,3-c]pyridine-5-carboxamide;

3-bromo-N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]furo[2,3-c]pyridine-5-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-prop-1-ynylfuro[2,3-c]pyridine-5-carboxamide;

- 5 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-ethynylfuro[2,3-c]pyridine-5-carboxamide; and

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-cyanofuro[2,3-c]pyridine-5-carboxamide;

provided that the agonist is the free base or a pharmaceutically acceptable salt thereof.

- 10 47. The method of claim 41, wherein the compound is

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2,3-dihydro-1-benzofuran-5-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-5-carboxamide;

N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-1-benzofuran-5-carboxamide;

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-1-benzofuran-5-carboxamide;

- 15 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]-1-benzofuran-5-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-6-carboxamide;

N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-5-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-bromo-1-benzofuran-5-carboxamide;

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-bromo-1-benzofuran-5-carboxamide;

- 20 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-methyl-1-benzofuran-5-carboxamide;

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-methyl-1-benzofuran-5-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-methyl-1-benzofuran-6-carboxamide;

N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]-1-benzofuran-6-carboxamide;

N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-6-carboxamide;

- 25 N-[(3S)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzofuran-5-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-isopropyl-1-benzofuran-5-carboxamide;

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-isopropyl-1-benzofuran-5-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-2-methyl-1-benzofuran-5-carboxamide;

- 30 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-2-methyl-1-benzofuran-5-carboxamide;

N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-3-bromo-1-benzofuran-6-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-ethynyl-1-benzofuran-5-carboxamide;

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-ethynyl-1-benzofuran-5-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-prop-1-ynyl-1-benzofuran-5-carboxamide; and
 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-cyano-1-benzofuran-5-carboxamide;

provided that the agonist is the free base or a pharmaceutically acceptable salt thereof.

5 48. The method of claim 41, wherein the compound is

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]pyrazino[1,2-a]indole-3-carboxamide;

N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-1H-indole-6-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-methyl-1H-indole-6-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzothiophene-5-carboxamide;

10 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-1-benzothiophene-5-carboxamide;

N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-1-benzothiophene-5-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1-benzothiophene-6-carboxamide; and

N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]-1-benzothiophene-6-carboxamide;

provided that the agonist is the free base or a pharmaceutically acceptable salt

15 thereof.

49. The method of claim 41, wherein the compound is

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]thieno[2,3-c]pyridine-5-carboxamide;

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]thieno[3,2-c]pyridine-6-carboxamide;

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]thieno[3,4-c]pyridine-6-carboxamide;

20 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]thieno[2,3-c]pyridine-5-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]thieno[3,2-c]pyridine-6-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]thieno[3,4-c]pyridine-6-carboxamide;

N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]thieno[2,3-c]pyridine-5-carboxamide;

N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]thieno[3,2-c]pyridine-6-carboxamide;

25 N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]thieno[2,3-c]pyridine-5-carboxamide;

N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]thieno[3,2-c]pyridine-6-carboxamide;

N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]thieno[2,3-c]pyridine-5-carboxamide;

N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]thieno[3,2-c]pyridine-6-

30 carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-3-bromothieno[2,3-c]pyridine-5-carboxamide;

and

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]-3-bromothieno[2,3-c]pyridine-5-carboxamide;

provided that the agonist is the free base or a pharmaceutically acceptable salt thereof.

5 50. The method of claim 41, wherein the compound is

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1,3-benzothiazole-6-carboxamide;

N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]-1,3-benzothiazole-6-carboxamide;

N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]-1,3-benzothiazole-6-carboxamide;

2-amino-N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1,3-benzothiazole-6-carboxamide;

10 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-1H-indazole-6-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl][1,3]dioxolo[4,5-c]pyridine-6-carboxamide; and

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl][1,3]dioxolo[4,5-c]pyridine-6-carboxamide;

provided that the agonist is the free base or a pharmaceutically acceptable salt thereof.

15

51. The method of claim 41, wherein the compound is

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;

N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;

N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;

20 N-[(3R,4S)-1-azabicyclo[2.2.1]hept-3-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;

N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]pyrrolo[1,2-c]pyrimidine-3-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]pyrrolo[1,2-a]pyrazine-3-carboxamide;

N-[(3R,5R)-1-azabicyclo[3.2.1]oct-3-yl]pyrrolo[1,2-a]pyrazine-3-carboxamide;

25 N-[(1S,2R,4R)-7-azabicyclo[2.2.1]hept-2-yl]pyrrolo[1,2-a]pyrazine-3-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-6-bromopyrrolo[1,2-a]pyrazine-3-carboxamide;

N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]pyrrolo[1,2-a]pyrazine-3-carboxamide;

N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]-6-ethynylpyrrolo[1,2-a]pyrazine-3-carboxamide;

30 N-[(3R)-1-azabicyclo[2.2.2]oct-3-yl]indolizine-6-carboxamide; and

N-[(2S,3R)-2-methyl-1-azabicyclo[2.2.2]oct-3-yl]indolizine-6-carboxamide;

provided that the agonist is the free base or a pharmaceutically acceptable salt thereof.